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VOLUME 1
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SUMMARY OF SPECIFIC COMMENTS

The following section lists the specific comments made on different topics that the Long Range Water Supply Study / EIR -- 2020 covered. The topics include:

1. Connecticut River Alternative
2. Watershed Management Alternative
3. Plymouth Aquifer Alternative
4. Projected Demand / Needs of the MWRA System
5. Millers / Tully Rivers Alternative
6. Upper Sudbury Watershed Alternative
7. Merrimack River Alternative
8. User Sources Alternative
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10. No Action Alternative
11. Evaluation / Assessment Criteria
12. Safe Yield of the MWRA System

COMMENTS ON THE CONNECTICUT RIVER ALTERNATIVE

There was unanimous opposition to this alternative from the 323 commenters on the alternative. Those opposing the alternative included 48 towns and 3 counties in Massachusetts, the state of Connecticut and 11 towns in that state.

1. Spring flood waters are needed to recharge groundwater aquifers along the river. Taking this water out of the basin can reduce our own water supplies.

2. Predicted population growth and increasing groundwater contamination in Western Massachusetts may, in the future, necessitate the use of the Connecticut River for drinking water in Western Massachusetts.

3. Over 70 sewage treatment plants discharge into the Connecticut and its tributaries below Northfield. The river's water is needed to dilute these wastes. Reducing the flow of the river will decrease the water quality of the rivers.

4. Rivers and their floodplains provide the most biologically diverse habitats in North America. They support many varieties of plants and animals that depend on periodic flooding. If we "skim the flood," we destroy some of this unique habitat.

5. The Atlantic Salmon and American Shad rely on the distinctive odor of the Connecticut River to find the way back to their "home" river. Reducing the amount of river flow into Long Island Sound could harm the Atlantic Salmon Restoration Program.

6. The more water that is drawn at the Northfield pumping facility, the more fish that are taken up by the pumps. Fish of any significant size cannot make it through the pumps alive. Therefore, the diversion will reduce our native fisheries.

7. According to the diversion proposal, variations in the river level will be absorbed by the Turners Falls pool. The base level of the Turners Falls pool determines the speed of the river flow in this stretch. If the base level drops, the river runs faster; if it rises, the river runs slower. The more variation there is in the river's speed, the more erosion occurs.

8. The impact of this proposed diversion would not happen in isolation; this would be added on top of the variations in river flow which are already taking place. Therefore, the cumulative impact of all of these changes will be even greater than the impact of this project alone.

9. The Connecticut River watershed is critical to the production of hydroelectric power.

10. The diversion of peak flows of 17,000 cfs or greater into a potentially full reservoir establishes a precedent for diverting water at anytime.

11. The flood waters of the Connecticut River are needed to cleanse the river bottom and remove the silt deposits.

12. The minerals deposited on the floodplains during spring flows benefit the farmers of western Massachusetts and Connecticut.

13. The diversion of Connecticut River waters into the Quabbin Reservoir may introduce lamprays which will destroy both cold and warm water fish there.

14. The diversion of Connecticut River Waters into the Quabbin Reservoir will introduce nutrient enrichment changing the biology of the reservoir, possibly causing eutrification and sedimentation.

15. Diversion will introduce Class B or Class C water into the Quabbin which is Class A. The introduction of a Class B or C water supply into a Class A is contrary to federal and state law.

16. There is no provision for treating Connecticut River water prior to introducing it into the Quabbin Reservoir.

17. The Connecticut River contains sewage, agricultural and urban runoff, industrial water and radioactive waste which reduce the quality of drinking water.

18. Diminished freshwater flow downstream from the diversion will allow salt water to travel farther upstream threatening well fields along the river.

19. Adequate supplies of freshwater are crucial to maintaining a productive estuary, the nursery for many species of fish where seasonal flooding and freshwater flows play an important role.

20. Dock levels will be adversely affected by the diversion.

21. Reduction of the freshet in the spring may bring greater growth of algal blooms.

22. The assessment report does not adequately address the potential downstream impacts on Connecticut of the Connecticut River diversion alternative.

23. Diversion may effect the City of Hartford's ability to greatly increase the range of recreational users which the river can support.

24. Diverting water will decrease the water quality of the Connecticut River.

25. Diversion will eliminate the economic benefits the Connecticut River Watershed offers the Pioneer Valley.

26. Diversion would set a precedent for other states to take water from the Connecticut River in the future.

27. Diversion will decrease water quality in the Connecticut River which would have an adverse impact on wildlife.

28. The impacts of diverting water during periods of low flow are not examined in the Summary Report.

29. All laws governing withdrawals would be governed by the Commonwealth of Massachusetts.

30. The needs and uses of downstream users of the current water supply were not analyzed.

31. What is the potential for and impact of surging, which is expected to occur as a result of the limited time available for actual diversion?

32. Any lowering of water levels in the river would necessitate extremely costly dredging and reconstruction of most marinas located along the river.

33. A decreased flow at this time could be particularly important in the vicinity of Haddam Neck where the plume from Connecticut Yankee extends across much of the river. The range of temperatures could get even wider.

34. The quality of the water for recreational activities will be affected.

35. The oxygen supply in the river will be depleted.

36. A reduced volume of water could promote a worse catastrophe than with higher volumes if an oil barge leaks.

37. Diversion will destroy Quabbin fishing.

38. Diversion will have a disastrous effect on fishing in the Wachusett Reservoir.

39. Lowered water flows through Holyoke and Springfield would exacerbate their sewer outflows into Connecticut. Could they be required to clean up their act?

40. If quantities of water were taken out of the river in dry periods there could definitely be a salt inflow perhaps well above the Haddam Nuclear Plant. Are the cooling pipes at Haddam constructed of materials which can withstand high salt?

41. Is it possible for Connecticut or the federal government to charge MWRA for water diverted, more in periods of low flow, less in periods of high flows?

42. Diversion will not cause the Connecticut River to dry up.

43. The dilution capacity of the Quabbin requires further analysis. Costs of more advanced pre-treatment need to be estimated. Can these costs be determined in advance of a situation in which the self-purification of the Quabbin Reservoir is executed?

44. There is no discussion of the combined impacts on the Millers and Connecticut Rivers. Should both sources be considered for augmentation purposes?

45. The study failed to assess the potential legal costs or delay-related inflationary costs due to interstate and political opposition, lawsuits and related problems.

46. At times of low flow there may be demand for draw down of flood control and power producing dams in Vermont which could, in turn, affect power production, water quality, fisheries resources and recreation.

47. The proposal might lead to development proposals for new water storage impoundments in Vermont.

48. There is inadequate analysis of certain radioactive and toxic chemical pollutants in the Connecticut River water to be diverted and what their short term and cumulative impacts would be on the quality of Quabbin's water supply for human consumption in the future.

49. There is inadequate analysis of whether radioactive and toxic chemical pollutants entering Quabbin on a regular basis over the long term would have the cumulative effect of seriously impairing Quabbin itself as a source of supply for water fit for human consumption.

50. The decision by MDC that environmental impacts downstream would not be investigated if instantaneous alterations of flow resulting from the project could be confined to within 5 percent of the instantaneous flow of the alternative contradicts the early decision the early decision of M.E.P.A that impacts could not be ignored simply because they were within the normal variations of the system. This decision eliminated virtually all environmental investigation of the Connecticut River.

51. It has not been clearly established that bascules and gates at the Turner's Falls Dam can confine alterations of flow downstream to within 5 percent when the rate of flow of the river is near 80,000 CFS.

52. The impact of the Connecticut River alternative on Quabbin Reservoir water quality has not adequately been accounted for, especially in regard to its impact on cost estimates fo the alternative, including net present valve.

53. The initial effort at thermal modeling of Quabbin Reservoir misrepresented the thermocline. Comparing the modeled thermocline with the actual empirical data showed that a stronger thermocline actually exists than was indicated by the model. The result of this would be to introduce pollutants, including coliforms, into the supply system more easily.

54. The effect of the omission of water treatment is to unrealistically depress the cost of diversion water from the Connecticut and Millers, making them appear to be the least expensive alternatives. Including cost of treatment and sludge disposal will bring the cost estimates for these takings into line with other propsals for augmentation.

55. A continuous monitoring system must be developed and installed with the capability of automatically shutting down the Northfield - Quabbin aqueduct in response to radioactive contamination of the river. This must be factored into Connecticut River cost estimates.

56. It is not fair, environmental responsible or economically efficient to transport Western Massachusetts water 70 miles east while simultaneously denying an emergency request from Amherst for a share of its own region's natural resources.

57. The study does not assume any treatment of a diversion-augmented Quabbin. Considering the potential impacts and the new Safe Drinking Water Act requirements, this is not a realistic assumption.

58. Historic mean flows for July, August and September are lower than the minimum desired flows identified in the report.

59. Future demands of upstream users are not adequately addressed in the report. New Hampshire does not have sufficient data at this time to adequately project future needs or assess the capability of existing supplies to meet these needs.

60. The report does not address possible impacts on scenic or recreational resources on the Connecticut River.

COMMENTS ON THE WATERSHED MANAGEMENT ALTERNATIVE

There was nearly unanimous support for this alternative from the 8 commenters on the specifics of the alternative and the scores of other commenters who mentioned this alternative as a way for MWRA to meet demand. Some commenters were concerned with flaws and lack of data in the study.

1. Lighter, more constant cutting over the entire period is preferable to intensive initial cutting.

2. Areas should be targeted for different levels of management based on their potential contribution to water flows and their relationship to sensitive environmental resources. In general, heavier cutting should be done at areas nearer the reservoir, and little or no cutting should be done on upland areas.

3. When feasible, a balance between hardwood and softwood stands should be preserved in some areas to protect wildlife habitats.

4. Soil data should be used to guide cutting practices and targeting areas. Differences in soil types and characteristics may make general widespread cutting inappropriate.

5. Detailed biological surveys should serve as an information base for decision-making. Accurate knowledge should be acquired regarding "indicator" and "featured" species.

6. Water flows and important ecological indicators should be monitored regularly to allow for adjustments in management practices and early identification of potential unexpected environmental consequences.

7. Potential impacts on water quality caused by management practices should be investigated. Also, surveys of aquatic ecology should be done at times which reflect realistic seasonal conditions.

8. Specially trained crews employed by the MDC should do the cutting in particularly sensitive areas.

9. The evaluation of impacts on wildlife populations was inadequate.

10. There were serious errors in the selection of indicator species.

11. The severe reduction in forest density, especially softwood forest density, can only create a major disruption and change in the ecology of the Quabbin Watershed. This alternative is much too extreme.

12. There will be a disruptive effect on the forest products economy of the region.

13. The potential for environmental harm from erosion created by Watershed Management should be studied further.

14. Collusion between those who would propose or administer Watershed Management and those who would profit directly by the cutting should be avoided.

15. Loggers typically mutilate the land on which they harvest trees.

16. An increased budget and more foresters will be needed for Watershed Management.

17. Discussion of road impacts is missing from the study, while the MDC report estimates that deteriorating roadways constitute the main source of erosion in the MDC watershed area.

18. MDC must establish standards and guidelines for long term consistent excellence in its watershed management program, so that proper direction is not lost over the 40 year study period.

19. MDC must develop tables and maps that break down the vegetation changes to be accomplished, slow acres of different kinds of strands before and after management.

20. The slower implementation proposed in the MDC plan is preferable because it will provide the necessary time for feedback from a properly monitored operation. A more regular schedule will also provide an even work load and regular support of the local economy.

21. Work on sensitive areas must be performed under the direct control of an MDC forester. An MDC crew must also maintain the roadways to control the erosion.

22. In spite of the manuals for such reports developed by EPA, USF&WS and others, containing standard formulae and techniques, the report fails to provide basic calculations to substantiate qualitative claims about impacts on water quality, wildlife and aquatic ecology.

23. Four of the indicator species probably do not exist on either watershed and three exist in extremely low populations. Indicator species should be relatively common, easily observed, and likely to be affected by the proposed work.

24. Consultants planned to base their water yield estimates on evaluations of soil vegetation units in the watershed. This would have provided better information about impacts of stream discharge as well as yields. Why was it not done?

25. The EIR's assumption that runoff into watershed streams will increase by less than 5 percent for average storms (pp. 58, 59) is apparently based on projections of increased yield to the reservoirs from the entire watershed, rather than from engineering calculations of changes in infiltration and runoff arising from changes in vegetative cover. To evaluate impacts on water quality and aquatic ecology in tributaries within the watershed, an assessment must be made of the increase in runoff into streams expected from a 20 - to 100 - year storm. These calculations could easily be provided for one or two catchments chosen as typical.

26. The EIR should also reconsider runoff associated with spring snowmelt.

27. Page 58 of the Task 7 report states that the proportion of surface and subsurface flows will remain stable. Substantiation for this statement should be made through references to the literature.

28. Impact on water quality in streams of the proposed manipulations of vegetation are discussed qualitatively rather than quantitatively. However, information is available to produce a simple model of expected changes in water quality as a result of the program.

29. It is impossible to evaluate impacts on aquatic biota because the report assumes that there will be no significant change in discharge, and since changes in water chemistry are not quantified.

30. The study on aquatic biota of streams should have focused on aquatic insects, not plankton. Baseline data on several streams in typical watersheds must be provided to allow predictions of expected changes.

31. The proposed indicator species are not useful indicators of changes in water quality in lower order streams.

32. The section on impact on reservoirs is of questionable value because it assumes that reservoir dynamics are the same as those of lacustrine systems.

33. Ecologically intolerant species, with restricted environments, must be given special consideration. In particular, the temporary or vernal ponds must be mapped and protected.

34. Vernal ponds must be adequately buffered and protected not only from logging but from associated activities such as roads and landings.

35. A system such as the USFWS habitat classification system, based on vegetation, should be used to substantiate predictions of change in wildlife species.

36. The effect on established habitats and species of extensive conversion to low density forest over a very short period of time is not addressed adequately.

37. The potential impacts on the deer population should be addressed and mitigation measures proposed to stablilize the population.

38. The reduction of dense softwood from 20 percent to 1 percent requires further study. The report should isure that such reduction be handled sensitively, leaving strips of dense habitat.

39. The material in the report detailing impacts on some bird species from reduction in density should be expanded and clarified.

40. Buffers must be established around wetlands.

COMMENTS ON THE PLYMOUTH AQUIFER ALTERNATIVE

There was unanimous opposition to this alternative from the 17 commenters on the specifics of the alternative.

1. Neighboring communities in Plymouth and Barnstable Counties will eventually look to the Plymouth aquifer for additional water supplies. Action by MWRA could adversely impact future supplies of those towns.

2. Groudwater levels are critical to the cranberry bogs of the Plymouth region. Pumping from the aquifer couild lower water levels under the bogs to a point beyond critical and into a stage of desiccation.

3. The lowering of groundwater levels created by pumping the aquifer will severely reduce wildlife habitat.

4. The lowering of groundwater levels created by pumping the aquifer will severely reduce the land surface necessary for groundwater recharge.

5. The large cost of building a pipeline to the MWRA system makes this alternative to expensive for consideration.

6. Removal of large amounts of water from the aquifer will have serious impacts on the trees in Myles Standish State Forest.

7. Many ponds and lakes in the region will be drawn to a point where they become swamps with the ecology and scenic qualities of the water bodies greatly diminishes.

8. The alternative will have serious impacts on the habitat of the red-bellied turtle, an endangered species.

9. Long Pond, a prime recreational asset to southeast Massachusetts may be serious impacted by the drawdown from the wells and the drying up of a stream presently flowing from Little Long Pond to Long Pond.

10. Industrial and residential wells may be rendered inefficient or useless by the drawdown of the aquifer.

11. A two dimensional geohydraulic study was used in the study when three dimensional computer models are available which give much more definitive information.

12. The geohydraulic calculations were done using an average annual rainfall on the area. The study should have predicted a worse case scenario which examined the one on influence during extented periods of droughts.

13. The socio-economic impacts do not consider the disastrous effects on the Plymouth community.

14. The drawdowns of water would seriously effect property values.

15. The ponds selected for assessing impacts do not come close to spanning the ecological or habitat range expressed by the many ponds in Plymouth that will be subject to impact.

16. The use of maximum pond depth on page 82 of the Assessment Report is of limited help trying to envision drawdown and potential effects. If surface area and volume figures are available, they should be used.

17. Some of the indicator species selected for the Plymouth Aquifer do not factually occur in the geographic area which will be potentially impacted. A more project specific list of indicator species should be drafted.

18 The study does not predict the optimum time during the year to withdraw water and minimize the drawdown on ponds, cranberry bogs, and marshes.

19. Page 103 of the Assessment Report describes "replacement wetlands," which implies the establishment of fully functional plant communities composed of species that were present in the impacted wetland. Can one create a freshwater pond that is the equivalent of Three-Corned Pond in Myles Standish State Forest?

20. On page 79 of the Assessment Report it is stated that there are no legally protected plant species in the ponds likely to be affected by drawdown. However, does not MWRA have some obligation to "officially listed" species (by the Division of Fisheries and Wildlife) even though not legally protected?

21. Referring to page 79 of the Assessment Report, because drawdown would most likely affect emergent and pondshore species, would it not be prudent to select 1-2 species from those categories as well as from the water column.

22. Results are given for the impacts of three well fields placed in the state forest and along Route 3. Are these sites the optimum location for reducing impact while providing adequate yield? What other configuration of sites were studied and why rejected? What factors constrained the selected locations?

23. Impacts are described in terms of average 15 mgd withdrawal. What is the range of withdrawal studied for this option, what are the impacts? Consultants described the pipeline (at the workshop) as limited to 15 mgd transport and capable on the average of 15 mgd? Which is it?

24. Study was based on average recharge conditions. What would the impact be during an extended drought?

25. Minimum drawdown contour presented was for 5 feet. One foot contour should be shown on the maps.

26. Will the potential of this alternative to provide redundancy for the MDC system be discussed?

27. Results seem to focus on impacts in the aquatic ecosystem? Consultants however stated that transitions will occur in the terrestrial ecology particularly in composition of communities. What are these impacts and what acreage or extent of impact can be anticipated?

28. Estimates should be given for the potential reduction of fresh water outflow to the estuary. Impacts are not likely to be evenly distributed. Where is the greatest potential harm?

29. The red-bellied turtle will have its habitat reduced. There are 18 rare and endangered plant species in the aquifer. What impact will they experience? Will the transitions referred to in the terrestrial ecology impact these in particular?

30. The aquifer is used for potable water now. Consultants do not report testing, in the limited two test wells used, for the presence of elements or herbicides and pesticides in the water. Cranberry growers blanket parathion pesticide on their crops with more limited application of herbicide. Reduction of groundwater might severely impacted the levels of diluted organics and present a risk to water supply and flora and fauna.

31. What levels of contaminates have been identified for which treatment is to be provided? Has NaCL been detected? Will it be increased with siting near Route 3?

32. What compensation will be offered, if any, for impacts on private wells, cranberry growers and scenic characteristics of residential sites located in the drawdown contours?

33. Since the tentative site of the treatment plant is now unavailable, what are other sites for the plant, how will this affect the cost of the alternative?

34. If water withdrawn contains organics, how will this affect the cost of treatment? Where will the sludge be disposed of ?

35. The Plymouth region is a fast growing sector of the state. The consultants anlaysis is not fully up-to-date concerning future local need for this water. Will this information be updated?

36. We would like to see a complete assessment of impacts to recreation in the Myles Standish State Forest.

37. It makes no sense to tap the Playmouth Aquifer to transport precious water north and bypass parched Brockton in the process.

COMMENTS ON PROJECTED DEMAND

Comments on the projected demand for water on the MWRA system were critical of the study on grounds that the projections were greatly excessive.

1. The category of "additional demand by partial users," which includes as much as 55 MGD of additional water as early as 1990, should have been eliminated altogether since the adoption of Chapter 382 of the Acts of 1981 and the passage of the Water Management Act of 1985.

2. Reference to "legally eligible communities" is out of date since "10- and 15- miler" designations are no longer valid.

3. Population growth estimates of 15% are contradicted by a virtually flat growth curve experienced in recent years, and as projected by the Metropolitan Area Planning Council (MAPC) to the year 2010, and by the Authority itself in planning for future sewer service.

4. An analysis of domestic water use indicates that the effect of projected increases in population and housing will be offset by projected reductions in water consumption.

5. The projected metered nondomestic water use is based on a highly inflated assumption, that of a 45% increase in employment in the Boston metropolitan area.

6. The Advisory Board questions the rationality of incorporating the full 55 MGD for partially-supplied users in the capacity planning estimate when this water may not be needed in reality. What is needed is an evaluation of how much additional water a partially-supplied community might request, and for what reasons.

7. Since many service contracts expire during the next several years, the study should also consider what effect renegotiating these contracts may have on future water demands on the MWRA.

8. The study does not fully address what possible measures could be used to reduce the expected probability of supply losses due to contamination.

9. The estimated losses in non-user communities due to contamination are highly imprecise, losses may be much less or much more than 27 MGD. Revised estimates should be developed to reflect how much water could be saved from contamination by various levels of effort to control the causes of water contamination.

10. The rate of growth assumed by MWRA should be consistent with planning rates used in other departments of the MWRA. The Authority should also seek to correlate its growth projections with the cumulative growth expectations of the cities and towns it serves.

11. Water consumption increases attributed to projected increases by 2020 in population (15%), housing (21%), and employment (45%) are not adequately supported by data and/or discussion in the Summary Report.

12. The Summary Report includes no information on past and present contamination rates to support the project increase in either contamination rates or the loss of existing water supplies due to future contamination.

13. Little or no emphasis is placed on protecting existing local supplies from potential sources of contamination. Since more than 60 MGD is provided by small reservoir and well supplies with the towns, it is imperative that these supplies are protected.

14. A new state-of-the-art demand study employing expertise from outside the New England region is needed. This would involve a disaggregated demand mode, sorted by geographic jurisdiction and functional category. This would be designed for convenient manipulation and updating by computer.

15. The Summary Report reflects a no longer appropriate attitude about the role of the MWRA water supply system. The provisions of the legislation that created the MWRA, especially Section 8D, express a clear legislative intention to alter the perception of the MWRA water supplies as an available resource to new or partially supplied communities.

16. The projections for 2020 are listed as having, conservatively, an uncertainty range of +/-13%. This is a substantial uncertainty range and underlines the danger of using these projections too literally.

17. The estimates for contamination of local water supplies are inflated and need to be downgraded.

18. The preliminary report does not account for the discretionary powers granted to you and therefore overstates the amount of water that will be needed to supply new or partially supplied users in the future.

19. The MWRA should press for water as a first priority in the state by promoting more funding grants and low interest loans for protection of local supplies so that towns can purchase reconstructions on critical aquifer recharge areas, watershed lands, and so they can restore abandoned water supplies where economically feasible.

20. The MWRA should immediately adopt a universal policy of terminating all contracts as early as legally possible.

21. The "legal obligations" category includes major amounts of water which are considerably above and beyond what the consultants calculated would be needed for growth or contamination in the pertinent communities. The quantities involved would substitute MWRA water for almost all the local supplies used in the service area.

22. To promote cost effective and timely water supply decisions, a "trigger" planning strategy should be developed. This strategy relies on an accurate description of the present water uses and includes monitoring of parameters such as population, changes in water use and technologies, precipitation and stream flow data, careful assessment of ongoing management and rehabilitation programs and so on.

23. The study assumes that an increase in demand (for water) is normal, acceptable and immutable.

24. The population projections used in the study are not tuned to the specific conditions of the Boston Metropolitan area, but are linked to national trends.

25. The MAPC population projections are based on extensive input from the communities regarding their local growth policies and trends, including the availability of residentially zoned land, whereas the MWRA projections had no such input regarding local conditions.

26. There is question as to how the study can justify projections of 45 percent employment growth and 11 percent population growth in the same period. With an already high rate of participation by women and a low unemployment rate in the region, it is difficult to see how such a high rate of growth in employment could materialize in conjunction with a much lower rate of population growth.

27. The additional demand of 55 MGD set aside for partial users represents an assumed loss of over two-thirds of the existing local water sources in the region, which currently totals about 80 MGD. This assumption is totally without merit considering actual historical rates of contamination and in light of current state water policies and statutes.

28. Earlier in the study, the MDC itself developed a formula for projecting future rates of contamination based on historical trends. These reached a maximum of 20 percent within a 10-mile radius of Boston and 10 percent outside a 10 mile radius by 2020. However, in arriving at the 55 MGD of additional demand, no such formula was applied.

29. The study should be revised to create a more realistic contingency reserve for contamination losses. The amount of this reserve should be reduced from 55 MGD suggested in the Summary Report by applying the study's own factors of 10 to 20 percent contamination losses.

30. The "contamination nonusers" and "potential future users" categories should be folded into one category, since they both represent expansion of the MWRA system to new communities, and under current law, approval of the MWRA board and the legislative would be required in either case. The amount of water set aside for this category should be limited to the communities which could realistically be expected to seek admission to the MWRA system.

31. In including all of the "Additional Demand" categories in the study, it should be made clear that they are all redundant with current local supplies, and are as such a reserve supply, rather than categories of actual existing demand.

COMMENTS ON THE MILLERS/TULLY RIVERS ALTERNATIVE

There was unanimous opposition to this alternative from the seven commenters on the specifics of this alternative and the scores of town resolutions and letters received from organizations and individuals that opposed all river diversion

1. Diversion would affect fisheries by altering habitat, especially by reducing scouring of spawning areas for salmon during high water. Stocking of trout and salmon was resumed in 1983. Sport fishing, a major tourist attraction, which is experiencing a come-back in the basin, would be threatened.

2. Recreational boating, rafting, kayaking and canoeing would be severely curtailed for lack of water. A number of growing recreational enterprises would be adversely affected.

3. The dilution effect of effluent discharged from the several waste-water treatment plants in the basin would be critically impaired.

4. Spring freshets recharge water tables that create a sponge effect by absorbing water in the flush season and gradually releasing water during the dry periods. Diversion would lower the water table, leaving less water for release in the dry periods.

5. Property values may be reduced because of the change in river characteristics, that in turn would reduce tourism, sport fishing and recreational activities.

6. Diversion would reduce flow in the Connecticut River.

7. The gauging station at Montague City is proposed to be the source of data for diverting waters from the Millers River. These data could initiate diversion even during periods other than peak flows.

8. Millions of dollars of federal, state and local money has been invested in several waste-water treatment plants. This effort has begun to pay dividends in terms of tourist attractions, sport fishing, recreation and enhancement of roadside areas and scenic vistas. Diversion would drastically erode these gains.

9. Vigorous spring freshets are essential as regular flushing actions to act in more sedimentation and maintain good water quality. This flushing action and rapid water flow increases dissolved oxygen that is essential to a good fishery.

10. Some local industries depend on an abundant flow of water to operate their plants, while others use existing hydropower plants as auxiliary sources of energy. Reduced flow through diversion would be detrimental to normal operation of those industries.

11. Diversion will destroy fishing in the Quabbin Reservoir through introduction of the lampray eel.

12. Sedimentation at the intake point in the Quabbin could also be damaging.

13. The spring takings set on p.112 of the assessment report do not reflect USFWS restraints for maintenance of downstream aquatic life.

14. According to the report, the river has very high levels of turbidity, fecal and total coliform bacteria, cadium and nickel, while pn, turbidity, tital coliform bacteria, cadium, iron and color are of concern in the Tully system. Although data on metals and organics is scarce, no additional water sampling was done. Moreover, no instantaneous impact analyses were performed, thus muting the significance of the impacts.

15. State economic development policy that targets the Millers/Tully area for increased development has not been factored into the study. Industrial point sources of pollution could increase, yet the impacts on the proposed water supply alternative do not take this risk into account.

16. The quality of source water criteria, discussed on p.114 of the Summary Report, when applied to the Millers/Tully rivers alternative, ranks those alternative as causing low adverse impacts from "potential episouic event susceptibility," yet this assessment is based on very limited quantitative data on future land and population in the watershed.

17. The impacts of decreased flow in the Millers River on water temperature and concentration of sediments have been poorly addressed.

18. The study does not assume any treatment of a diversion-augmented Quabbin. Considering the potential impacts and the new Safe Drinking Water Act requirements, this is not a realistic assumption.

COMMENTS ON THE UPPER SUDBURY WATERSHED ALTERNATIVE

There was unanimous opposition to this alternative from the 39 commenters on the specifics of this alternative and the scores of town resolutions and letters received from organizations and individuals who opposed this alternative along with the other diversion alternative.

1. The diversion will present both health and safety problems due to the mercury contamination of the Sudbury Reservoirs and River from the Nyanza chemical dump site.

2. The Sudbury River has undergone a recuperative period in terms of its wildlife ecology over the past decade. The study did not adequately assess the impact of diversion on wildlife.

3. No mapping of wetlands nor an assessment of wetland conditions at various river stages, as required in the scope, was presented in the study. The lack of spring and storm flooding will result in a loss of wetland and wetland valves such as water purification/filtration, wildlife habitat, and water supply.

4. The diversion will result in a 23% decrease in the average annual flows of the Sudbury River - exposing areas of this already slowly moving, shallow river.

5. The diversion may threaten water levels at Lake Cochituate needed to maintain satisfactory recreation at Cochituate State Park.

6. The study does not adequately demonstrate that this alternative would not constitute a serious threat to the Great Meadows National Wildlife Refuge, and a potential threat to the fish, wildlife, and people who use and depend upon the refuge for preservation, enjoyment and education. No effort has been made to correct the deficiencies in the 1984 EIR with regard to potential impacts on the refuge.

7. The reduced Sudbury River flow resulting from the alternative will reduce the ability of the Sudbury to dilute the more polluted water flowing from the Assabet River.

8. The Town of Billerica depends on the Concord River for its drinking water. Because the town's intake structure is fixed at an elevation of 104 - 107 feet, they would lose their supply if the water level of the Concord River should drop below 108 feet.

9. The Alternative may threaten the Town of Lincoln's drinking water wells within the river's watershed.

10. The Alternative may jeopardize the Town of Concord's water supplies.

11. The Alternative may threaten the Lake Cochituate groundwater sources used by the Town of Natick.

12. Alternatives for the disposal of treatment plant sludge were not studied adequately in the Sudbury EIR or in the Water Supply EIR.

13. Private wells along the Sudbury/Concord Rivers may be adversely affected by the alternative. How will people and towns be compensated for their losses in water supply?

14. Vital water quality sampling during the spring runoff periods of March and April was not performed.

15. Daily flow data for the Sudbury River used in the study is outdated and inadequate.

16. The elevation of the Sudbury River used to trigger a taking was established at the wrong location, at Sherman's Bridge where the river backs up because of a downstream dam.

17. The relationship of any Sudbury River diversion to the classification of the Sudbury as a Scenic River was not addressed as required in the MEPA scope.

18. Diversion of Sudbury River peak flows will eliminate the scouring and cleaning of the river and its floodplains that is important to their health.

19. Operation guidelines developed for the use of the Sudbury Reservoir treat ment plant limit its use to only a few days a year, making the water very expensive.

20. The alternative has potential for adversely affecting the flood abatement characteristics of the river and Fairhaven Bay.

21. The alternative will degrade important recreational resources heavily used by metropolitan Boston residents.

22. The alternative will cause a deterioration of the water quality in the Concord River. The plan will reduce the dissolved oxygen content in the Concord River and help release toxic materials from the sediments.

23. The transfer of water from the Framingham Reservoirs to the Sudbury Reservoir will produce long term, negative impacts on the water quality and associated aquatic ecology of the Sudbury Reservoir.

24. There is no discussion of the capability of the water treatment plant to remove the cadmium, lead, silver, and mercury found in the Framingham Reservoirs or any actual test treatment of water contaminated with these pollutants.

25. The study ignores agricultural and irrigation requirements.

26. The Upper Sudbury River is a vital asset standing idle. The alternative will not dry up the Sudbury River.

27. The study did not recognize that the Sudbury River proposal comes under the Interbasin Transfer Act of 1983.

28. The study fails to adequately study the potential impacts on fisheries, including the fisheries restoration project.

29. Since the Sudbury River is seriously polluted it can provide water of only mediocre quality and questionable safety to consumers accustomed to a water supply famous for its purity.

30. The population in the area between Routes 128 and 495 has been increasing and the future water needs of the area need to be assessed before diverting Sudbury River water to the MWRA.

31. The scope of the Sudbury project concerning timing and duration over a twenty year planning priod has not been met.

32. Impacts on sediment transport from flow changes have not been adequate studied.

33 The alternative will threaten the quality and quantity of the Town of Wayland water supply.

34. Increased algae concentrations below the confluence with the Assebet River is of concern to the Town of Billerica drinking water.

35. The report fails to present the history of the Sudbury Reservoir proposal and fails to discuss to objections to DEIR 03621.

36. Which operational constraints have been "incorporated" into the Upper Sudbury proposal and which are new?

37. Which flow constraints have been incorporated and which omitted?

38. Do the regulations discussed in 314 CMR 4 and 5 suggest other constraints?

39. In respect to the numbered constraints appearing on page 5, it is misleading to imply that the treatment plant could safely operate from October 1 to June 14. Changing the mitigation measures on which that time period was based certainly calls into question the 8-1/2 month operating period assumed here.

40. The summary section fails to discuss whether or not the treatment described in the "Final Report on the Pilot Plant Study for the Proposed Sudbury Reservoir Water Treatment Plant," Volume I, September 1, 1983, is or is not adequate for treatment of cadmium, lead, silver, mercury, iron and manganese and for anticipated increases in pollutants entering the Framingham Reservoirs.

41. The cost as well as the propriety of mixing different quality waters deserves discussion.

42. Section 9.11 fails to explain or maintain the difference between the Sudbury Reservoir study and the Upper Sudbury Alternative study in the area of hydrologic modeling.

43. There is no explanation of how the minimum monthly flow requirements (listed on page 16) have been derived.

44. The report should also note how and where the regression equation was arrived at concerning monthly elevations.

45. In respect to Time-of-Year Criteria, please clarify which reservoirs is/are referred to in connection with the constancy of summer water elevations.

46. What is the reason for the jump in storage in all reservoirs between the months of April and May.

47. What will be the depth of water in the Framingham Reservoirs at maximum drawdown?

48. A definition of "safe yield" in Section 9.11/Hydrologic Modeling is needed.

49. Would a surface water discharge permit be required to discharge water to Stoney Brook?

50. There is no indication of quantities or types of chemicals involved in the treatment plant, nor of water recapture; is any discussion of enviromental impacts warrented?

51. The costs of the pilot plant testing which would be required to demonstrate "the need for an adequacy of" treatment for heavy metals are all inadequately discussion in Section 9.12.

52. The Summary Report, March 1986, in Section IV, NonCost Considerations, rates the Upper Sudbury Alternative Reliability factor as LA (Low Adverse). We suggest reconsideration of this rating to HA (High Adverse) because of the difficulties pointed out in Section 9.12 of the Task 9 Report.

53. It is not clear why the pumping station reliability is rated as very high unless emergency generators are to be provided. (If so, are they reflected in the cost of the mechanical equipement?)

54. Is the cost of elevation-sensing machinery at the Framingham Reservoirs included in the capital costs?

55. Any rating of source reliability should take into account the possible long term inadecuacy of the proposed water treatment because of increased con-concentrations of urban pollutants.

56. We register strong objections to subsection 2 of 9.21 - stating that projected changes in water levels of 2 to 18 inches, depending on locations and seasons, "are well within a 50-year variation in levels on a seasonal basis and must be considered insignificant with respect to water quality."

57 There is an inaccurate description in the Land Use section, 9.50 of the consultant's work. At page 149 the report states that 'As a result of analysis by IEP, Inc. regarding the possible hydraulic relationship between the river and groundwater for the Towns of Framingham, Sudbury, Wayland, Concord, Lincoln, Bedford and Billerica, a possible relationship was identified for some of the municipal wells in Wayland and Concord". Field testing was undertaken only at Wayland and Concord and the well/river relationship was established, not merely a possibility.

58. Section 9-21 speaks of "changes in water level in the river as a result of diversion into Sudbury Reservoir which have been detrmined to be minimal at seasonal pumping rates ranging from 12 mgd (summer) to 40 mgd (spring). Since the Task 9 Alternative really does consist of diversion into the Sudbury Reservoir, but the Parsons Brinckerhoff study was concerned with diversion out of the Sudbury Reservoir into the MWRA system, this section must be considered as misleading and inaccurate.

59. When the treatment plant is not in operation, or during periods of high flow, what protection does that facility provide to water released downstream out of the Sudbury Reservoir?

60. The Assessment Report must be amended to include a discussion of permits that may be required, in accordance with 314 CMR 4.01(4) and related regulations dealing with water quality of Sudbury Reservoirs.

61. How can a plant which is operational during the first half of June - spawning season - be reconciled with avoidence of flucuations in water levels during the same period (Section 9.32 - p.116).

62. Section 9.33 states that major changes in land use within the floodplains of the Sudbury River over the period 1990-2020 are not likely. The report, however, projects a 20% increase in population and an absence of land use controls within the watershed. It seems unlikely that there will be no makor changes in land use in foodplains.

63. The MEPA Regulation 10.05(7) Part VI-3 concerning uncertainties and disagreements has not been covered.

64. The Summary Report and the Upper Sudbury Watershed Task #9 DEIR failed to follow the MEPA regulations 301 CMR 10.13 concerning combined EIR's.

65. Clarify the difference between the Summary Report's statement on page 80 "designed to allow for capture of flows from the south branch of the watershed in excess of required minimum releases to the Sudbury River. Surplus flows would increase the yield from the Sudbury Reservoir" and the Sudbury Reservoir Water Treatment Plant DEIR section 7.1 "MDC will continue to release all natural flows from the remaining 52.9 square miles of Upper Sudbury River watershed."

66. There is a lack of provision for period channel flusing below Basin #1. The flood control dam now under construction on Baiting Brook will further reduce natural flushing.

67. Operation of the treatment plant until June 14 with no provision to assure that the reservoir is full on June 14 is too far into the normally low water season to assure recovery and maintenance of reasonable water levels during the summer. Operation should be stopped by May 15 or alternatively the Sudbury Reservoir should be left full on the June 14 shutdown date.

68. Taking of 17 mgd of relatively clean water from the branch of the river, will worsen downstream pollution.

69. A 5 foot drawdown between mid-April and mid-June will expose and destroy the spawning beds of many fish, especially of Bass and Bluegills.

70. A sudden 5 foot drawdown especially after water temperatures approach freezing in the fall causes large reductions in the population of fresh water snails, crawfish etc., whose role in controlling algae and organic pollutants as well as providing a food source for higher level carnivores is often not fully appreciated.

71. Pumping water from Basin #1 would lower the water quality of the Sudbury Reservoir and Basin #3 and permanently contaminate the sediments of these water bodies with heavy metals.

72. Use of water from the South Branch will necessitate modifications to the planned treatment plant and complicate the disposal of the sludge, because of the additional and more dangerous contaminants.

73. Rapid growth in the towns of Ashland and Hopkinton which draw their water supply from the South Branch watershed will continuously reduce the flow in the South Branch. This will further reduce the dilution of contamination picked up as the stream flows past the Nyanza chemical dump site on its way to Basin #1.

74. The report says "The release of toxic metals and organics at the site of the former Nyanza, Inc. dye manufacturer presents a potential water quality problem downstream" (pg. 82). The proposed diversion point is downstream.

75. A constraint on which the environmental impact was assessed in the Sudbury River Water Treatment Plant (SRWTP) study was the requirement that all natural flow from the Upper Sudbury Watershed be released at Dam #1. The Task 9 report claims that flows at Dam #1 greater than those corresponding to the proposed elevation criteria at Shermans Bridge are "excess" and may be diverted. This claim is not made explicitly, nor is it supported by any impact analysis.

76. The Sudbury River Water Treatment Plant (SRWTP) study claims that its proposed operational constraints are based on meeting water elevation requirements for the Great Meadows Wildlife Refuge. This is not true the criteria elevations should be at least 0.5 foot higher at all times, and 2 feet higher in the critical month of May. There should be no diversion after June 1.

77. The MDC appears to have been describing the prepared Sudbury River diversion as a reactivation of an existing source of supply. The use of this (reactivation) terminology raises the spector that an attempt is underway to remove the proposed Sudbury River diversion from the protections provided by the Interbasin Transfer Law.

COMMENTS ON THE MERRIMACK RIVER ALTERNATIVE

There was nearly unanimous opposition to this alternative from the 35 commenters on the specifics of this alternative and scores of town resolutions and letters received from organizations and individuals opposed to this alternative along with the other diversion alternatives.

1. Diversion will decrease the flow rates which are critical to the viable production of hydro-electric power. Is the MWRA planning to replace this power or provide compensation for the revenues lost?

2. A diversion will jeopardize the return of anadromous fish (salmon and shad) after a major investment in federal and state monies.

3. Impacts on the dilution of pollutants and wastewater were not analyzed.

4. There is no flow data to help correlate different flow-rates with water quality.

5. Water quality data under low flow conditions is not presented in the study. More work is needed on the effect of flow reduction on water quality.

6. The lowering of the Merrimack River volume will affect the tidal influx in the river, drawing more salt water further upstream and threatening water supplies.

7. Seasonal flooding is beneficial to the estuarine resources and the ecological consequences of flood skimming are yet unknown.

8. The alternative will necessitate a huge investment of over $500 million, being the most expensive supply and requiring major increases in MWRA water rates.

9. The environmental sequences of digging a 26 mile, 10 foot diameter tunnel, and the requirement to properly dispose of huge amounts of rock spoil are not clearly understood.

10. Growth and groundwater contamination in Massachusetts and New Hampshire will necessitate increased dependence by valley communities on the surface waters of the Merrimack.

11. Diversion will threaten the water supply of the Town of Groveland. The town currently depends soley on one well 75 feet from the Merrimack River, which draws more than half of its water from the Merrimack by induced recharge.

12. Diverting water at flows exceeding 3500 cfs or greater establishes a precedent for diversion to meet need at any time.

13. Seasonal flooding is beneficial to the floodplain and the ecological consequences of flood skimming are as yet unknown.

14. A diversion could significantly impact wildlife.

15. Valuable agricultural land would be consumed for new treatment facilities.

16. Impacts of reduced flow on downstream drinking water supplies were not assessed.

17. The diversion may harm the City of Lowell's $25 million national park.

18. The source of water for this alternative is of too poor quality to use for drinking purposes.

19. Diversion of the Merrimack River will make the water supply problems of North Andover ever worse.

20 The economic impact analysis of the study is misleading. Many of the jobs for the project's construction will not come from the Lowell area because of the city's low unemployment.

21. If the water level of the Merrimack is lower a few inches below the crest of the dam, the city of Lawrence's water intake may become inoperable. The study should answer the water intake level problem on a town-by-town basis.

22. The Merrimack River alternative offers reliability in case of natural disaster.

23. No new storage capacity is needed for the Merrimack River alternative.

24. The effects on rare and endangered species in communities along river edges is of concern for this alternative.

25. This alternative is more than five times the capital cost and nearly 9 times the annual operation and maintenance costs of the Connecticut River Alternative. Has anyone considered whether this huge cost differential might be more than enough to offset the loss of hydropower revenue in the Connecicut River which the Chapter 766 legislation was created to protect.

26 How cost effective is the 8 months per year operating time of the treatment plant, and what would the plant personnel during the four months of down time.

27. To what extent, if any, will the levels of sodium, coliform bacteria and other potential water quality pollutants increase in Groveland's Well #3 as a result of the proposed diversion and what will be the resulting impacts of these increased pollutant levels on local water treamtment costs and public health?

28. To what extent, if any, will the levels of coliform bacteria and after potential pollutants increase in the river's shellfish as a result of the proposed diversion?

30. What will be the ensuing impacts of closure or the local shellfish economy (i.e. of revenue and jobs)?

31. We would like to see more detail on impacts of the proposed project on the recreational use of the Middlesex Falls Reservation.

32. The Sudbury River is also tributary to the Merrimack, and if selected would further reduce flows downstream in the Merrimack River. No cumulative assessment of these many actions has been undertaken, a serious issue.

33. The legislated regional Merrimack water service district in Methuen was not adequately addressed.

34. The proposed treatment plant will produce appreciable sludge. The study identifies the need for a 150 acre disposal site and costs in this factor. But no site or sites are identified.

35. It makes less sense to direct the Merrimack River at a time when communities in and contiguous to the Merrimack Valley have their own water needs.

36. Historic mean flows for July, August and September are lower than the minimum desired flows identified in the report.

37. Future demands of upstream users are not adequately addressed in the report. New Hampshire does not have sufficient data at this time to adequately project future needs or assess the capability of existing supplies to meet these needs.

38. The cumulative impact on anadromous fisheries from hydro facilities and the proposed intake to the diversion are not adequately addressed for the Merrimack alternative, loss of juvenile anadromous fish would most likely be high. Since fish migrating to New Hampshire may be affected, the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 66 et. seg.) may be applicable.

39. The proposed Merrimack diversion would affect anadromous fish spawning and nursery habitats from Tyngsboro to Haverhill. There is no mention of how the minimum flows were determined in the 1977 Cortell study. The MWRA should undertake an Instream Flow Incremental Methodology with American shad, river herring and Atlantic salmon as target species. The study should consider the flows necessary to operate the fish passage facilities at Lawrence and Lowell.

40. Use of the Merrimack as a public drinking water supply may result in required upgrades to wastewater treatment facilities in New Hampshire. Increased growth and development in New Hampshire will most likely result in greater wastewater discharges and an increase in non-point pollutant wastewater facility plans. Any proposals involving use of the quality and address treatment to satisfy state and federal drinking water standards.

41. The report does not address possible impacts on scenic or recreational resources on the Merrimack River.

COMMENTS ON THE USER SOURCES ALTERNATIVE

There was general support for this alternative from the 10 commenters on the specifics of the alternative and the scores of other commenters who urged development of local sources instead of river diversions. Several commenters from possible user-source areas opposed development in their area.

1. The study generated no new hydrological data on which to base development decisions. More information is needed on the yields of the sources and the hydrological connections of the different sources.

2. The study's consideration only of sources within a 15 mile radius of the State House ignores the regional nature of local sources themselves, and of the scope of the water supply problem.

3. The Summary Report did not discuss the legal, financial and administrative obstacles to increased development of local sources.

4. The evaluation of financial impacts of each alternative is uninformative with respect to the User Source Alternative. The study did not analyze the impacts on the local water districts that develop the local sources. A plan is needed for assigning the financial responsibilities of development and operation.

5. The Elm Bank source should be acquired by the MWRA to prevent the abandonment of another local source.

6. Criteria for selecting the User Sources to be development should be established with the involvement of the Advisory Board.

7. How effective and reliable is the advanced water treatement discussed in this alternative, and what are the risks involved?

8. What criteria will be used to determine the feasibility of source protection?

9. Development of User Sources in the Ipswich River watershed will impinge on the water quality of the river.

10. Development of User Sources in the Ipswich River Watershed will add to already existing low flow problems.

11. Any further withdrawals from the Ipswich River may cause a major water shortage in a drought year for many of the 22 cities and towns that use the Ipswich River watershed for drinking water.

12. Development of the Fort Meadow Reservoir in Marlborough may have impacts on the city's sole water recreation area.

13. The water quality of the Fort Meadow Reservoir in Marlborough is too poor for drinking.

14. No mention of the potential for developing the Neponset Aquifer is made in the Summary Report.

15. The study is unnecessarily biased against the User Source option, since the available data indicates a small amount of available at an unusually high cost.

16. Little consideration was given to the special problems of surface and groundwater protection.

17. The small rivers of eastern Massachusetts are already heavily used and overstressed. Development of these watersheds will lower the local water table and reduce the quantity of over flow which support the small streams.

18. Local sources of water provide redundancy and diversity to the MWRA system.

19. User Sources can mitigate drought problems for the MWRA system since local sources may have different precipitation patterns and groundwater responses than the Quabbin Reservoir.

20. Advantages to local sources are that they can be added incrementally, they can be tuned to need, and they require less lead time than river diversion.

21. What the study has not fully taken into account is that contaminated water can be treated. Dr. Betsy Colburn of Massachusetts Audubon Society estimates that 42 mgd could be brought on line from abandoned wells if they were treated for poor quality or contamination.

22. MWRA should press for protection of water resources as a first priority of the state.

23. MWRA should promote more funding for grants and low interest loans for protection of local supplies so that towns can purchase restrictions on critical aquifer recharge areas and watershed lands, and so that they can restore abandoned water supplies where economically feasible.

24. The full report should address the possibility of MDC support for capital improvements to local systems which might otherwise lose their supplies resulting in these communities subsequently joining the MDC system; other financial mechanisms to allow towns to continue using their own systems. .

25. The full report should address criteria and the method by which the criteria will be applied in determining the future evaluation of local sources should be listed in the full report.

26. The full report should address the possibility of blending water from different sources as a way of mitigating substances in the water should be considered.

27. The full report should address utilization of the MDC/MWRA as a backup for local system overload or breakdown.

28. The full report should address town rather than MDC ownership and management of local sources should be addressed as an alternative.

29. The full report should address the feasibility of using deep aquifer sources including listing current programs addressing this issue; and other sources or treatments that have not been identified, including deionization should be considered relative to the local sources alternative.

30. The full report should address the differences for each site between safe yield and design yield.

31. The full report should address artificial recharge: a complex hydrological study including but not limited to location of new sources, improved well spacing and augmentation of ground water suppies by induced infiltration and artificial recharge.

32. While this alternative is difficult to evaluate because of the number and diversity of sources, the study did not bring this alternative up to the same level of analysis as the others.

33. The 28 sites were not investigated in sufficient detail to determine their cumulative yield.

34. The number of sources studied should not be arbitrarily limited, and the sources shoul be evaluated for yield, quality, and long term protection and management needs.

COMMENTS ON THE DEMAND MANAGEMENT ALTERNATIVE

There was unanimous approval of the Demand Management Alternative from the hundreds of comments who mentioned the alternative. Leak detection and repair, conservation in general, and public education were the most frequently mentioned components of the alternative. Many commenters argued that the study greatly underestimates the potential of demand management.

1. The estimates for savings from the Nondomestic conservation program need to be reevaluated in light of the many advances in water-saving technologies which are being implemented in industries, businesses, and institutions across the country.

2. Issues that should be resolved before implementation of the Leak Detection and Repair program include the distribution of responsibilities, and the equitable designation of program costs amoung involved communities.

3. The study does not fully address the communities' levels of involvement in the Domestic Device Retrofit program.

4. For the Retrofit program, incentives which may increase voluntary response rates should also be examined.

5. The savings used for the Domestic Device Retrofit program are too low. The savings rate should be adjusted upward to reflect both the high installation rate assumption and the more efficient, high performance devices now available.

6. The costs used for the Retrofit program are too high, almost $100 per household. This is nearly double the costs of the Orlando, Florida program. One cost which could almost certainly be lowered is labor, by hiring mechanically skilled installers rather than licensed plumbers.

7. Benefits from reduction in required wastewater treatment derived from the Retrofit program have not been calculated.

8. Savings from reductions in energy requirements for hot water heating have been ignored.

9. Incentives should be created for the installation of extraordinary water-saving devices such as the composting toilet and domestic recycling and on-site treatment systems.

10. The Nonemergency Education program should be expanded, not scaled back.

11. The Retrofit program should be expanded to include sanitary fixtures in the area's industrial plants, commercial establishments, and government agencies.

12. A progressive water rate structure should be implemented.

13. The Boston Water and Sewer Commission (BWSC) is concerned with the projections of water to be saved under the Domestic Device Retrofit program. There has not been a larger scale effort to conduct a project in this region.

14. The Leak Detection and Repair program can be improved. The study underestimates the potential of recoverable leakage in each of the user towns.

15. The plumbing codes should again be revised to reflect the current state - of - the - art technology.

16. The impact on demand that the implementation of a pricing structure which encourages water conservation would have is not given adequate consideration in the Summary Report.

17. The more than 40 mgd increase projected for "metered nondomestic water use" is difficult to reconcile with a serious "demand management" effort. The study does not justify the assumption that nondomestic water use will increase proportionally with employment increases, and clearly does not incorporate all the potential for water conservation in the nondomestic sector.

18. MWRA estimates of 5% recoverable loss from the unaccounted-for category are too low given the 20% savings from leak detection and recovery by Boston and Arlington.

19. State-wide metering is stated policy of EOEA and is required of applicants for interbasin transfers under the Interbasin Transfer Act. Metering at all levels in the distribution system is critical and must be more aggressively pursued in order to encourage conservation, to help pinpoint leaks, and to finally determine exactly how much water is being pumped from Quabbin Reservoir.

20. Projections for the Non-Domestic Use category ignore the basic fact of decreasing reliance on water-intensive industrial processes.

21. Projections for domestic and nondomestic water savings have not taken into account the impact of regulary monitored meters in promoting conservation.

22. Whatever funding mechanisms are pursued, the Authority must take lead role in supporting leak detection efforts at the local level.

23. In considering the material in the study, please be aware that the Commonwealth has made funds available for local leak detection through Chapter 786. The study presumes that no state funds for local leak detection would be made available when the Chapter 286 funds were exhausted and that the recovery of water through local leak repair would essentially cease.

24. Unaccounted-for water comprises about one-third of all water estimated as withdrawn from your reservoirs and local sources. Several previous studies, substantiated by the experience of the Arlington and Boston leak detection and repair programs, have indicated that 40-60 MGD of MDC/MWRA water is potentially recoverable leakage within the communities.

25. Action must be taken to determine exactly what the total "unaccounted for" category comprises and how much of it can be recovered.

26. The pilot program for device retrofit should be supported to provide good estimates of possible future savings.

27. The quantity of non-revenue producing -water should be reduced.

28. MDC has indicated that there is approximately 5 MGD of unavoidable leakage in the tunnels and mains. The remaining system unaccounted-for should be identified and reduced during the planning period.

29. Several areas identified in MWRA's Summary Report will clearly be scrutinized by the WRC should MWRA seek an interbasin transfer. They include: Is the level of conservation sufficient to meet the criterion of "all practical conversation measures"?

30. The study assumes that recoverable leakage will not be recovered after 1990, and that it will grow from 10.7 MGD in 1990 to 21 MGD in 2020. This assumption incorporates a policy decision. The study should not include recoverable leakage in estimates of future water demand. Planning to augment supplies so that recoverable leakage can continue and increase is in conflict with the Interbasin Transfer Act and state water policies.

31. The study does not estimate the amount of unrecoverable leakage. This is a major omission, since it is impossible to evaluate the total amount of leakage and whether the estimates of recoverable leakage are reasonable in relation to total leakage. The study should be revised to document the amount of unrecoverable leakage.

32. The 53 MGD of "other unaccounted-for water" is not adequately documented or justified. The study itself says that the components of this category are "unquantifiable," yet this large amount of demand was included in the projections through 2020. The study should be revised to include the necessary documentation to justify the inclusion of 53.5 MGD of "other unaccounted for water" in the demand projections.

33. The MWRA should commit itself to reducing leakage in its own distribution facilities, and to install and upgrade system meters so an accurate accounting of actual water use can be made.

Comments on the No Action Alternative

1. The No-Action Alternative is unacceptable. A margin of safety above the bare minimum water supply necessary to meet demand must be provided for in the selection of alternatives so as not to inhibit economic growth in the Commonwealth.

2. The development of supplemental sources has been delayed too long. The No Action Alternative which results in water shortages in a state with adequate water resources is clearly unacceptable.

3. Where are the data and conclusions regarding economic consequences of "No Action"?

Comments on Evaluation/Assessment Criteria

1. No scoring system should be employed which assigns numeric value to each of several pre-selected variables for each alternative.

2. The Authority should outline exactly what criteria are being used and what assumptions are being made to determine the value of each alternative. If they are used, those factors which cannot be easily scored should not be scored at all, but should be given equivalent weight alongside those factors which can be scored.

3. The method of weighting of ranking the criteria into high/low beneficial and adverse or no impact is a very simplistic approach for differentiating the impacts of implementing each alternative.

4. There are many examples of violations of the intent of the Secretary of Environmental Affairs to require a complete assessment of impact of alternatives including those impacts within the normal range of variation for the system under study.

5. The criteria of No Impact is improperly used in the comparison of alternatives. The category is applied when no work on the issue has been done and the impact is "unknown."

6. Table 4, Evaluation, Criteria/Assessment Criteria, p. 32 lists the United States Fish and Wildlife Service as the source of minimum streamflow conditions for indicator species for river alternatives. Investigation of the accuracy of this statement reveals that the USFWS flow recommendations were not used for the two relevant rivers, Sudbury and Millers. The result is minimum stream flows for these two rivers which do not meet their recommendations for critical times of year for fisheries.

7. The use of a Net Present Value method to compare costs of alternatives leaves some alternatives looking very inexpensive because the consultants did not estimate treatment plants into the alternative. Two other costing procedures, the operations/maintenance/capitalization and impact on ratepayers procedures, were not given equal exposure.

8. The study has failed to provide adequate criteria for selection of alternatives.

COMMENTS ON SAFE YIELD

1. WSCAC ran a computer simulation and determined that the consultants had miscalculated the "thermocline" which determines how far the reservoir could be drawn down without loss of water quality. Their estimate of the reasonable "minimum pool" would increase the safe yield to 318 MGD.

2. The computer model used for determining safe yield should be run to show intensity, duration and frequency of drawdown to and below the minimum pool elevation, i.e., elevation 490'.

3. It is artificially stringent to presume that the 490' elevation cannot be exceeded if it is for brief periods.

4. The current safe yield model does not do a probabilistic or stachastic model of each historic month and tabulate a statistical probability for safe yield. This could be done, leading to the flexible management really needed, not the one number system originally proposed.

5. The safe yield model should be brought up to date. The model should be run for the years 1980-85 to update against recent history its validity and rerun the model from 1970-85 substituting the Shaft 4 meter readings at Sudbury, for the appropriate district meter readings in eastern Massachusetts. This would assist in understanding the reliability of the model and further cast some light on the mysterious system unaccounted-for-water which appears as a meter discrepancy between Shaft 4 and the sum of the district meters.

6. The "safe yield" of Quabbin Reservoir is derived from a mathematical model with no mention of possible estimation error. The scientific validity of the 300 MGD figure is therefore open to question and does not provide firm footing on which to judge the need for increased water supply capacity. In as much as the safe yield value is under dispute, the DEIR should include some measure of estimation error.

7. The Quabbin - Wachusetts reservoir system represents a 3 year reservoir when full but is very difficult to build back up when demand consistently exceeds safe yield.

8. The lower the Quabbin level (the higher the yield), the more certain it becomes that water treatment will be necessary.

COMMONWEALTH OF MASSACHUSETTS

MASSACHUSETTS WATER RESOURCES AUTHORITY

Public Hearing on the Summary Report of the Long Range Water Supply Study and Environmental Impact Report-2020, held at Northampton High School, Elm Street, Northampton, Massachusetts, on June 3, 1986.

MR. RALPH: By way of introduction, please let me introduce myself.

My name is Michael Ralph. I am public affairs director for the Water Resource Authority.

Our agenda is very simple.

We are going to have Michael Gritzuk give an introduction. He is the executive director of the Massachusetts Water Resources Authority.

He will speak basically as to why we are here.

The second individual who will then give a brief representation and explain what the process was that brought about the entire matter from inception through our summary report will be Mr. James Hoyte, Secretary of Environmental Affairs.

Here is Executive Director of the MWRA, Michael Gritzuk.

MR. GRITZUK: Good evening ladies and gentlemen.

I am here on behalf of the Massachusetts Water Resources Authority.

I would like to welcome you here tonight to this public meeting for us to discuss the long-range water supply studies that are currently underway and most importantly to

obtain your input.

I would like to read a summary statement that hopefully will summarize the study and then we will proceed from there.

Recently, after six years of research analysis, a summary of the long range water supply study's fifty reports was published. Before any decisions are made, the Massachusetts Water Resources Authority board of directors is holding this meeting to learn what the public thinks about the study and the options analyzed, what concerns you have, and what your suggestions are to the board members as they begin their review of the issues and prepare to make water supply policy decisions which will affect water use into the twenty-first century.

First, I want to outline for you the framework in which these important issues are being discussed, what this new Authority is, what the water study covers, and what steps are ahead in the planning process.

The MWRA was created by the legislature in 1984.

In 1985 MWRA assumed all sewer functions and some water functions that had previously been provided by the Metropolitan District Commission, MDC.

MDC retains ownership and maintenance of present and

future water, watersheds and reservoirs.

MWRA distributes this water to forty-six cities and towns, thirty-six in the Boston metropolitan area, and ten others located in the vicinity of system conduits and reservoirs.

From time to time we are also called upon to serve nearby communities which have temporary emergencies.

We provide water to the homes of approximately 2.4 million people and to the jobs of many others.

The supply system is an excellent system reflecting the foresight of the early planners.

Quabbin Reservoir, storing water from the Connecticut River Basin, and the Wachusett Reservoir, storing water from the Merrimack Basin, have a total capacity of 477 billion gallons.

Since 1969 there has been concern that the demand on the system regularly exceeds the reliable safe yield.

As responsible managers of the water supply for half the citizens of the Commonwealth, the MWRA and MDC are faced with the problem of bringing supply and demand into balance.

The MWRA assumed from the MDC the lead role in the difficult but essential task to plan prudently and well in advance to meet water needs in the future.

The long range water supply study and environmental impact report project begun by the MDC, and now continuing under MWRA, covers a forty-year planning period ending in the year 2020.

The consulting firm of Wallace, Floyd, Associates, assisted by twelve subconsultants of various technical specialties, has conducted the study.

The scope of the study was determined by the Massachusetts Environmental Policy Act, with broad public input into the issues to be addressed.

The study was begun in response to the 1978 state water policy direction that the MDC should study the use of Connecticut River water and assess the impacts of doing this and also study alternatives to this project, including a no action alternative and demand management.

An unusually large public participation component accompanies this study.

A citizens advisory committee, called the Water Supply Citizen Advisory Committee, was statutorily established under MEPA.

WSCAC was funded by the MDC and now by the Authority. WSCAC has reviewed each step and offered input and advice since the initial scoping of the study.

In addition, the consultant contract includes a broad public information program.

The intent of the study is to produce a forty-year plan for the metropolitan water supply and an environmental impact report on the alternatives included in the scope issued by MEPA, as required under Massachusetts law.

The study includes three main elements:

Estimates of potential demands upon the system to the year 2020; analysis of present supply capacity; and assessment of nine options to meet demand that may exceed present supply capacity.

The study, which has not as yet been approved by the Authority, estimates that by 2020 there may be a demand for water from this system of 150 million gallons per day more than present supplies can provide.

These baseline demand projections incorporate an estimated reduction of thirty million gallons per day from ongoing state water conservation programs now in place and expected to continue.

Nine detailed assessment reports, each of which will be included as an appendix to the draft environmental impact report, have been published.

They assess envrionmental, social, economic, and

engineering aspects of nine alternative options to increase water supplies and reduce demand.

The nine alternatives studied are:

Demand management;

Watershed management;

User sources;

Upper Sudbury watershed alternatives;

Connecticut River;

Millers and Tully Rivers;

Merrimack River;

Plymouth Aquifer;

No action.

Desalination was investigated early in the study and dropped from further analysis with the approval of MEPA because of its high cost.

I would like to briefly summarize the nine options:

Demand management:

Demand management was the first alternative studied.

Research was conducted on water conservation experience throughout the nation, and present system water use was analyzed to determine what techniques would be most effective to reduce water use in this system.

A demand management plan developed from this analysis

has a potential for a savings of thirty million gallons per day, in addition to the thirty million gallons per day savings in the baseline.

The MWRA is presently reviewing this plan to determine the appropriate program for its system.

We are already working to institute rate structures that encourage conservation and have initiated design work to pilot test a domestic device retrofit program to accelerate installation of water saving devices in households.

We are working with our communities to develop a system-wide leak detection and repair program. Many of our communities have such programs in place.

I especially want to mention the achievement of Boston, our largest user community, which has made remarkable progress in leak detection and has already saved fifteen million gallons per day from leak detection and various other demand management efforts.

MWRA is working on programs to increase the efficiency of our system's infrastructure.

We are also continuing the substantial water conservation education and information program begun by the MDC.

User sources.

In the user sources alternative, twenty-eight small sources, located in user communities, are reviewed.

Most of these are groundwater sources.

The MWRA board will carefully consider which additional water sources it may be feasible to develop within user communities.

Watershed management.

The watershed management alternative assesses how changes in vegetation on MDC-owned watersheds might increase water run-off while maintaining aesthetic, environmental and wildlife values.

The estimated yield is five million gallons per day.

Watershed management is already a program and plan of the MDC.

Sudbury Watershed.

The Upper Sudbury watershed alternative assesses reactivation of MDC's Sudbury Reservoir system which is presently used only in emergencies.

The addition of a water treatment plant at Sudbury Reservoir would increase present on-line supplies by twenty million gallons per day.

This is also the subject of a separate environmental impact report.

River alternatives.

Using part of the high flows of the Connecticut, Millers, Tully or Merrimack Rivers has been examined, and yields were estimated using specific environmental and legal constraints.

The MWRA views the proposed river diversion alternatives as a last resort only.

The Connecticut River alternative was assessed at a yield of sixty-three million gallons per day coming from the main stem of the river.

The Millers Tully Rivers are in the Connecticut River watershed.

This alternative could supply thirty-eight million gallons per day.

The Merrimack River alternative was assessed at a yield of 120 million gallons per day through a water treatment plant in Tyngsborough.

The Plymouth Aquifer alternative assesses the impacts of pumping fifteen million gallons per day of groundwater from wells in Plymouth to the distribution ystem in Quincy.

The no-action baseline is part of every envrionmental impact report.

This study examines what would happen if demands rise to

the amount estimated but no new supplies are developed.

One response would be to build a water treatment plant for present sources. This would allow a lower reservoir drawdown and make an additional thirty million gallons per day available to the system.

What are these steps ahead of the study?

The study makes no recommendations. No decisions have yet been made by the MWRA as to future water needs, policies or plans.

The board of directors' deliberations on these matters will take some time.

They will carefully consider the public comments as they decide how much additional water, if any, will be needed.

If additional supplies are necessary, they will establish criteria for selection and choose preferred alternatives.

The MEPA and EIR process.

The board's decision will be reported in the draft environmental impact report submitted to MEPA.

At that time MEPA will have a formal comment period and hold public hearings.

This will give the public an opportunity again to comment on the water supply plan developed by the board.

A final EIA will then be prepared incorporating any additional information that MEPA requires.

Other state and federal approvals.

Federal envrionmental requirements will apply to the alternatives, including in some cases an environmental impact statement.

Several Massachusetts laws, including the Authority's Enabling Act, the Interbasin Transfer Act and the Water Management Act regulate new supply development.

The Department of Envrionmental Quality Engineering must approve any new water supply.

MDC will be involved as the owner of any new source. The Water Resources Commission must approve any interbasin transfer, and legislative approval must be obtained for any proposed new water sources.

I would like to conclude this overview of the MWRA planning effort and assure you of three things:

First, the MWRA is committed to conserving water and is already moving to do that.

Secondly, the MWRA is dedicated to protecting and improving natural resources, whether in Boston Harbor or in the Connecticut Valley.

The MWRA will not pursue any project that harms the

environment or deprives a supply area of needed resources.

And lastly, the MWRA will fulfill its essential public purpose to provide safe and sufficient water supplies to the 2.4 million people whose homes we serve, to the many others whose jobs depend on this water system, and to those who will need this water supply in the decades to come.

We intend to accomplish this mission in a responsible manner and we ask for your advice and assistance in the important decisions that lay ahead for all of us.

Thank you.

MR. RALPH: Thank you, Mike.

Before I turn the mike over to Secretary Hoyte, I would like to introduce the members of our board who are here:

Starting at the end of the table:

Paul Anderson.

Lorraine Downey.

Thomas Arnold.

Jonathan Souweine.

And the Chairman of our Board, Secretary James Hoyte.

SECRETARY HOYTE: Thank you Mike.

Good evening.

My name is James Hoyte.

I serve in Governor Dukakis' cabinet as secretary of

environmental affairs.

Before reading my formal statement, the Governor asked me to read a letter that he recently wrote to the Executive Director Michael Gritzuk because he wanted to be absolutely clear as to his position with respect to the issue of river diversions.

And I am going to read that letter in its entirety.

Dear Mr. Gritzuk,

While I recognize the Massachusetts Water Resources Authority has an obligation and responsibility to explore alternative water resources for future projected needs, I want to take this opportunity to restate for the record my opposition to programs recommending diversion of certain rivers outside the metropolitan area, including the Connecticut and Merrimack.

As you are aware, the Interbasin Transfer Act, the Water Resources Authority Act, and the Water Management Act seek to conserve and protect our natural resources, the environment and the interests of water users throughout the state.

Together these three pieces of legislation, which I supported and signed into law, embody clearly defined management and enforcement procedures so that our

environment can be preserved.

It reflects a clear and unequivocal legislative attempt to make any further diversion of rivers a last resort, to be considered only after every feasible conservation measure has been taken.

That surely is not the case in the metropolitan water system. Accordingly I cannot and will not support any proposal to divert any river into the MWRA system.

(Applause)

-- measure to conserve existing resources and manage water demand more efficiently in the future.

Sincerely,

Signed Michael S. Dukakis, Governor

I want to try to describe the process that I am participating in, the roles that I play as secretary of environmental affairs.

(Prepared statement read by Secretary Hoyte.)

In any case it is enough about the various roles.

I join Mike Gritzuk and my fellow members in coming before you ladies and gentlemen to invite your comments, oral and in writing, on the summary report or any aspect of the long range water supply study.

We will take them seriously.

Thank you.

MR. RALPH: What I would like to do now is open the floor up to public comments.

I think our protocol will call on elected officials and representatives to speak first.

But I think that as Secretary Hoyte and Executive Director Gritzuk have indicated, WSCAC has played a sufficiently large role that I think Robie Hubley will be our first speaker from WSCAC before we are going to hear from the elected officials.

Just from the sign-up sheet, we have quite a few people who want to testify, and I would ask, so that everybody gets an opportunity, to try and keep your comments anywhere from three to no more than five minutes, if at all possible.

ROBIE HUBLEY: Mr. Secretary and members of the Authority.

(Prepared statement read and submitted by Robie Hubley.)

MR. RALPH: Thank you, Mr. Hubley.

I understand that Representative Jack Healy is here and we will hear from him at this time.

REPRESENTATIVE JACK HEALY: I am Representative Jack Healy from the First Congressional District.

I represent twenty-two towns out here in the legislature.

I am also the house chairman of the special legislature commission on water supply.

I would like to thank you, the board members, Secretary Hoyte and Director Gritzuk for coming out here this evening.

I've got two very simple points to make.

One is that I think you should know that we are watching your actions like hawks.

Many of you have participated and many of us have been around since the seventies as we participated very actively. The legislation has established the Massachusetts Water Resources Authority.

In that legislation, which is Chapter 372 of the Act of 1974, we very clearly delienated what we expected from the MWRA.

The pertinent page, 763 of that act, which says if you are going to look for a new system and you are going to be looking at new areas, you should look at the safety yield system.

You should make sure that no existing water supply

within that system has been abandoned.

You should make sure a water management plan has been established for a community.

Four, you should make sure that there are effective demand management measures that have been established in that system, including leak detection, but not limited to that.

Five, the user water supply sources should be an effective part of development.

The point is this happened in 1983; your study started in 1978, and your study is severely deficient.

These changes of 1984 changed the rules of the game for the operation of your board.

These are fundamental changes. You can't use a 1978 prognosis and have a valid study. You just can't do it.

We urge you to take this kind of mandate that came from the legislature and look at it very carefully because all of us want a good water supply system in the state and it is encumbent upon you to do what is outlined in the legislature.

We gave you a great deal of discretion. I don't think it is appropriate for the legislature to tell you exactly what you have to do, but if you don't get cracking in a

reasonable way of dealing with the demand management, your mandate -- and we know you have been busy, you have done a good job, we expect you to start acting as quickly as possible and we are not going to wait for another year or two after you use the study as a smoke screen and delay what you should have done.

We know that conservation measures and leak repair in some communities have been effective. We know that Arlington has done a good job. But what about the other communities within the MWRA system?

How are they doing? They have not been doing as well.

You should make sure they have implemented appropriate water conservation measures, leak detection, all these things outlined in the legislation should be on board and please don't use the study as a way of having meeting after meeting for the next two or three years and make us more impatient.

Thank you.

(Applause)

MR. RALPH: Thank you.

REPRESENTATIVE FROM THE FIRST DISTRICT:

I represent the first District, which you are in, and

most of you that came up from Boston realize why most of us in Western Massachusetts enjoy this beautiful living every day.

We have many things we want to protect and we will fight for what we have.

And we have an excellent water stock the commission would want from Western Massachusctts.

I have prepared text which I won't go through, but this year marks the 200th anniversary of Shay's Rebellion.

The people of Western Masszchusetts have historically been treated as second class citizens in the chambers of the lawmakers in the capital area, even though we pay our taxes.

It seems that we are seen more often as a place to get things from that Boston doesn't have and more usually as a place that Boston wants to take these things from and comes to get things from.

We in Western Massachusetts have a resource. We believe that that is a resource we have fought to keep. You could even go into why it is now a class B river which it was class A.

We are committed to that as a resource, to provide a valuable resource for Western Massachusetts, but more importantly the farming communities need that and when you

talk about diversion which is in a peak water time, that water can be no good for Quabbin but we need the silt that the river provides for our farmland.

That is very, very important.

We have the richest farmland on the entire eastern seaboard and we want to keep it that way.

Any attempt at diversion will spell subversion in Western Massachusetts.

(Applause)

And finally you were created because people like myself and Robie Hubley fought very hard for the creation of this Authority, to take the question of diversion out of the backrooms and out of the realm of the politicians into the rational logical forum and it is our obligation and as Jack has mentioned, we are watching it very very closely not to take an easy political solution, which is to divert, but to make the hard realistic decisions based on facts and scientific information, and I would presume that you will live up to that mandate.

Thank you.

MR. RALPH: I think there are some representatives from Connecticut here today.

David McQuade, from Governor O'Neill's office.

DAVID MCQUADE: Good evening.

My name is David McQuade.

I am administrative aid for policies to Governor O'Neill.

I am here this evening to give a statement from Governor O'Neill and express our opposition to divert any water from the Connecticut River basin.

I am also here this evening on Governor O'Neill's behalf to express opposition from the many citizen organizations in our towns and counties of Connecticut which expressed to the Governor their concerns and their opposition to this diversion proposal.

In addition I am here this evening to fulfill the mandate established by the Connecticut General Assembly in the 1977 and 1979 resolutions to express the legislature's opposition to the diversion of the Connecticut and Millers Rivers and other contributories.

I think it is absolutely clear to everyone who is assembled in this room that the Connecticut River and its contributories are our most valuable resource with respect to pollution control and waste disposal, hydropower in various forms, commercial and recreational, fishing,

transportation and livelihood for many of our residents.

I would like to submit a report to you for your review of the Connecticut River.

It has been prepared by the Department of Envrionmental Protection and addresses the matter in both environmental and economic terms.

The citizens of Connecticut have literally spent millions of dollars to improve the quality of the Connecticut River in recent years and the towns along the river have implemented plans and invested in projects which would bring people back to this important resource.

It is clear that the diversion will have a tremendous impact on this resource, and more important, it is clear that the consultants have failed to fairly assess the impact of this diversion proposal, an impact that we believe has enormous consequences for our state.

I am not here tonight to suggest that the Massachusetts Water Resources Authority should cease in its efforts to provide adequate water supply for the people of the Greater Boston area, but I would ask that you pursue such alternatives as demand management, leak detection and repair, wathershed management and supply and which will

accomplish the goals without having any impact on our towns and streams.

Governor O'Neill has asked the Attorney General of Connecticut Joseph Lieberman and the commissioner of the deprtment of environmental protectiion to also address you this evening on the legal and technical matters related to our opposition to this diversion.

In conclusion I would like to thank Massachusetts Water Resources Authority members for this opportunity to express the governor's concern and full opposition to the diversion of the Connecticut River, and I would also like to thank the Great Governor Michael Dukakis for a strong stand opposing this diversion, and I would ask the Authority that it follow his lead.

ATTORNEY GENERAL JOSEPH LIEBERMAN: Members of the Authority, Mr. Secretary.

I am Joseph Lieberman, Attorney General of the State of Connecticut, and I am here tonight as the lawyer for the people of Connecticut to voice our opposition to any plan that will result in damming or diversion of waters from the Connecticut River.

The interbasin transfer of the Connecticut River to the

Quabbin Reservoir and ultimately to Boston will hurt the ecology of the Connecticut River and ultimately to Long Island Sound.

I have come here tonight to tell you respectfully but unequivocally that we will not permit this to happen.

(Applause)

As you know, this is not the first time we in Connecticut and our friends in Western Massachusetts have fought this particular battle.

Nearly two decades ago the Massachusetts legislature authorized what they must have thought was an easy and economical solution to the water supply crisis of the Boston Metropolitan District Commission: Simply divert water from the Connecticut River at the Northfield pumping station and feed it through a tunnel to the Quabbin Reservoir.

To us in Connecticut this attitude then seemed to be Connecticut be damned.

And the fact that we are here tonight, so many years later, still discussing a proposed diversion shows us that at least in some circles this attitude has not changed.

I have read the consultants' study prepared for your Authority.

I presume that this study was done to evaluate the

impact of the various options considered.

But I must say that I found it deficient when it came to the option of diverting the waters of the Connecticut River.

The study in fact does not address the effects of the diversion of the Connecticut River.

I can't understand how the removal of three hundred and seventy-five million gallons of water a day for over eight days per year from the Connecticut River can possibly be construed as having no impact.

(Applause)

The Connecticut River is not a pipeline to service Boston.

(Applause)

It is a sensitive living system.

It is a valuable natural resource to be shared equally by the citizens of several states.

A diversion of the magnitude being proposed will have long-term, costly and, I fear, irreversible consequences that we will not even fully know or understand until decades after the fact and, I am afraid, after substantial damage has already occurred.

We did not know for instance what effect the damming of the river for power in the 1930's would have until the fish

died.

We paid a heavy price for the shortsighted waste disposal practices of the past when the river could not be used any more for recreation.

Now, after spending millions of dollars to make this river more beautiful and healthy, we simply must not repeat the mistakes of yesterday by permitting this diversion today.

And fulfilling my oath of office and considering the specific mandates that have been passed by the General Statute and General Assembly of the State of Connecticut and the specific resolutions on this topic adopted by the General Assembly of the State of Connecticut, I must say to you in all clarity tonight that I am determined and that I have no choice but to use every legal means available to me to prevent the diverison of the Connecticut River.

(Applause)

We will argue before your state regulatory commissions. We will argue before federal regulatory bodies.

We will, if necessary, institute a legal action before the United States Supreme Court.

(Applause)

To quote Winston Chruchill, we'll fight on the beaches

if necessary.

The rights of the people of Connecticut to the river for public health, water supply, recreation and commerce must and will be protected.

This river is a natural system which was previously squandered and abused by us, by mankind, by civilization, must from this point on be preserved and enhanced.

(Applause)

The fish and wildlife, their habitat provided by this river basin are natural treasures that must be guarded.

As attorney general of the State of Connecticut I feel it to be my responsibility to defend these treasures, and I will do so wherever necessary and however possible.

But it is my sincere hope that common sense, neighborly spirit, concern for the environment and respect for the river will prevail and that such legal action will ultimately be unnecessary.

I urge you tonight to consider our concerns.

I urge you to implement other alternatives.

I urge you to develop a comprehensive water supply and management program within the existing watersheds of the Boston Metropolitan area.

But most of all speaking at the botoom line on behalf of

the people of Connecticut I urge you, please leave our river, our river alone.

Thank you.

(Applause.)

COMMISSIONER OF THE CONNECTICUT DEPARTMENT OF ENVIRONMENTAL PROTECTION:

Mr. Chairman, members of the hearing committee.

My name is (unintelligible) and I am the commissioner of the Connecticut Deprtment of Envrionmental Protection.

I come here in the spirit of neighborliness and ask you not to consider the Connecticut River diversion alternative.

We recognize that providing community drinking water is a matter of the highest magnitude.

This resolution will require the utmost cooperation between all of governmental and public agencies specifically charged with this function.

As commissioner of the Connecticut Department of Envrionmental Protection I have been directed by the governor to study the technical aspects of the long range water supply study report through the year 2020.

The Department has directed the proposal to divert the Connectiut River ever since it was first proposed in the late 1960's.

This study clearly demonstrates that through the implementation of demand management, watershed management, individual user resources of the Upper Sudbury Reservoir alternative the Massachusetts Water Resources Authority could augment their present supply by approximately eighty million gallons per day.

And MWRA could also utilize approximately twenty million gallons per day from the Alden Reservoir, thus providing a total of one hundred million gallons a day, by the estimates presented to be sufficient to meet the projected demand of the year two thousand twenty.

In addition the MWRA should study the various watershed management yields, and pursue an effective and aggresive leak detection and repair program.

While I have significant reservations concerning certain aspects of the following alternatives, they can, in principle, be supported.

The first is demand management which on implementation will result in an estimated saving of thirty-two million gallons per day, and data can be established to determine the effectiveness of this program.

The leak detection and repair program included in this option is very important and should be the focus of any

program designed to save water.

The second is watershed management which produces an additional approximately five million gallons per day.

The third is management user resources which includes abandoned and other user water supply in the service area.

The total yield of these services is unknown. However sensitive analysis should be performed to determine what the maximum and minimum yield might be.

The summary report fails to address many important issues and questions which have been posed by the reviews of assessment report.

I question specifically the water demand projection.

Water demand projections are based upon an economic model which predicted the substantial increase of job opportunities in the metropolitan Boston area.

However population projections predict a decline or at best a stable population.

Whatever it may be, the category of additional demand for additional users fails to reflect local water supply sources which can be clearly utilized and will remain a viable source.

As shown in this summaruy report, approximately one third, to be exact about twenty-eight percent of all the

water taken from the Quabbin Wachusset Reservoirs is unaccounted for.

There should be a system with meters to accurately assess the loss of water in the system.

Leak detection and repair programs should be on-going to achieve maximum savings of lost water.

How can you accurately predict future demand needs when one third of water delivered to Boston cannot be accounted for or gets lost?

I will submit my written statement to you, but the State of Connecticut urges the MWRA to utilize their system to its maximum potential.

So that is about the extent of my remarks.

Thank you very much.

MR. RALPH: Senator Olver.

STATE SENATOR OLVER: Authority and Secretary Hoyte.

I am Senator John Olver from the Franklin-Hampshire District and I want to thank you for coming out and testing the waters so-to-speak out this way.

I rather suspect you have not had such an active discussion of one way as it has been thus far and may well

be for the rest of the evening since you were trying to decide on a sewage treatment plant in another location in the eastern part of the state.

If you didn't know you had a hot potato, you certainly do know so now.

In some way I feel a little bit sorry for you because I really believe that you have inherited what is the end of a bad construction mentality in its support that you would have before you in terms of options for water needs and it really becomes a job for you to turn that mentality around, to do what is now in the interests of conservation and proper resource management.

The way we ought to be going in the 1980's and for the future basically is to develop alternative in order to turn around what have been wasteful procedures and poor resource management which are simply unacceptable, and that is what you have to turn around.

The MWRA is going to have to take this opportunity I believe through examination and abandon the obsolete assumptions that went into the previously commissioned study.

Since that study was commissioned the legislature has passed potent legislation which I believe, if it were

followed to the letter and we'll be expecting you to follow these laws to the letter, I believe would preclude the need for any kind of diversion.

Compliance with those statutes would make diversion unnecessary and instead a combination of conservation, repair and maintenance and sensitive and proper management of the facilities and watersheds will make make it unnecessary for the future.

The Interbasin Transfer Act which was passed in 1984, which is Chapter 21 section 80, Chapter 30 section 2, was a major environmental priority of myself as the prime sponsor over a series of years and every legislator I believe that comes from the Western part of the state and probably every legislator who represents any potential donor basin in the state, under that law, the Massachusetts Water Resources Commission must review and approve any transfers out of the basin and in order to approve it, they must first seek local water mangement plans of watershed planning to maximize water availability.

They must see that there has been a development and protection of all local sources for maximum water availability.

They must seek stringent conservation measures along

with local leak detection and repair of systems and proper pricing to encourage conservation and the installation of modern water systems through water meters, so that we'll be sure that there is not the kind of millions of gallons of water lost that are unaccounted for, water coming from a donor area, as it is now the case, to the metropolitan area.

And they also have to, under the Interbasin Transfer Act, abandon the protection of current commercial and industrial users of donor basin from which such a transfer would occur before any approval can be given.

Further there is a Water Management Act which was passed last year, in 1985, and while it does not directly relate to the interbasin diversion or transfer, it does substantially upgrade the water resource management capacities of all of the communities involved and makes it much more possible for them to perform the tasks that I have outlined. And that would be necessary for approval of any kind of transfer under the Interbasin Transfer Act.

Both of those statutes provide numerous opportunities for public input and comment and intervention.

Hearings such as this have to be held in a number of different places and the courts as well.

And you can be well assured, as you have been by the

legal representative of the State of Connecticut, that the point of one of those functions is going to be taken by the people in this area and the people representing the towns and the State of Connecticut.

All those opportunities exist.

I gave a talk at a smaller formal session in Greenfield not long ago and at that time had a long chart which had some forty or fifty steps in it that have to take place in order for a diversion to occur, and in those steps there were numerous places where hearings ocurred and where input and comments and potential legal action would be taken.

I am sure you know all of that and furthermore the Scenic River Act does require legislative approval as well of a diversion out of the basin, so that that is an additional opportunity for the people in the donor basins to make their oppositions known.

Basically we all expect those laws to be followed and know that they are going to be followed.

The MWRA should take the previously commissioned report back to the drawing board and include all of these legislative mandates as outlined in the acts and have them briefly at least mentioned in any assessment of options,

because it is not any longer a question of diversion of this river or that river, and four or five such diversions have been suggested as if they were co-equal with a series of items which under the new laws must be considered first.

By any reading that I make of those laws and by any intent that those who passed those laws had at the time of their passage, you have to do several things before you can consider diversions of the Merrimack or the Connecticut or the Millers or the Tully.

You have to do a whole series of things which include conservation programs that has been suggested already, which could gain as much as thirty million gallons a day.

You have to look at watersheds and water management that may be able to gain as much as ten or fifteen million gallons per day.

You have to consider comprehensive meters to account for millions of gallons per day that have been lost or at least is unaccounted for in that system, and that may gain as much as a hundred million gallons a day.

And you have to consider the feasibility of local sources and the protection of those local sources, many of which at the time that the MDC water system was set up were shut down and could be put back into operation.

Many of them are certainly as economical as any one of the options.

You also have to consider a pricing structure that is going to encourage large users to conserve rather than a pricing structure which tradionally may tend to charge lower and lower prices as the amount of water being used goes up.

Water resources are special in this day and age. I know one cannot expect all results as going to be as dramatic as they have been in some cases, but I know we have very dramatic leak detection and repair systems that have paid for themselves in a very short period of time, in a year or two.

We have seen cases of industrial conservation where it was possible to save a large percentage of water. I mean by a large percentage more than fifty percent of water.

We have more than one example of that and the cost of conseration measures that have been put into effect, both conservation and use measures, has been recovered in a matter of a year or two.

Again those measures all have to be used before you should come back with options that look at any kind of diversion.

All the people that we represent from those river

basins are going to be expecting that will be done.

The combined savings from those kinds of measures I believe can be shown to represent at least as much as the amounts of water that your studies have suggested are needed for the future needs of the metropolitan area, and if those laws are followed, I believe that we will not see a need for a diversion.

When passing the Water Management Act and the Interbasin Transfer Act, the legislature and the people of the Commonwealth recognized that our water must be treated with respect and forethought if it is to provide adequately for continuous growth and prosperity for all of the people in the Commonwealth, and the Water Resources Authority is going to have to comply with those provisions of the law.

It is the law.

And I think you should start by dealing directly with all of those provisions that are part of the acts that have been passed over the last couple of years before you look seriously at the options which go to the --

(Applause)

-- diversion options, wherever they may be, all over the Commonwealth, and I think when I say that I can say that we will be united in any of the proposed donor basins anywhere

in the Commonwealth until all of those measures have been looked at and have been complied with.

Thank you very much.

(Applause)

STATE REPRESENTATIVE BUTLER: I want to express a very big thank you for all of the people here who are being so patient allowing these elected officials to speak before you, and I will be brief because you are the people who the Water Resources Authority should hear from more than any of us.

(Applause)

I am (unintelligible) Butler. I am state representative from the Second District which inclueldes the Towns of Northfield, Wendell.

I am glad to see you Wendell there.

I also represent the towns on the Millers River so I wanted to make sure that everybody knows that we are as opposed to diversion of the Millers as we are of the Connecticut River.

(Applause)

Everyone is here to issue an outcry of protest and outrage at the possibility of any diversion.

You are talking about tampering with our environment and tampering with rivers that provide us with our wonderful way of life, our rich environment and our present and future economic security.

We are here to present to you convincing reasons why the thought of diversions of any of these rivers is absolutely ludicrous.

You have already heard from the legislature and attorney general of the State of Connecticut who were here to remind you what the laws are.

I am here to tell you and I want to be absolutely clear that I will tell you that you are living in a fantasy world if you think a drop of water will be diverted from the Connecticut.

You are living in a fantasy world because first of all any diversion requires a two thirds vote of the entire legislature and I and all the members senators and representatives from Western Massachusetts will be there to prevent that vote from being heard.

And secondly the people out here will be joined by thousands, thousands and thousands of other people from Connecticut and Western Massachusctts in massive resolutions for you to even consider it.

The Water Resources Authority has a responsibility and your responsibility is serious and we take it very seriously and we encourage you, as you have in your most recent history, to provide good decisions and proper management.

And obviously the first step in proper management is to make sure that you practice resource management effectively, efficiently and wisely and to their maximimum capacity. And that is not happening.

You have heard testimony already about the fact that one third of the water system is unaccounted for.

That is only one example and I am not going to go into other examples because they have been listed and others will testify about them.

But we here in Western Massachusetts don't take kindly to people who do not provide stewardship for their own resources and we expect you to do that.

Our expectation of you is that you will provide wise and responsible leadership and we are calling on you to take as your first act of leadership on this issue that you declare unanimously after this public hearing that under no circumstances will the Water Resources Authority consider a diversion of the Connecticut, the Millers or Tully Rivers.

Declare it now and that is the very least that we ask

you to do.

Thank you.

(Applause)

ELINOR HARTSHORN: My name is Elinor Hartshorn, and I am here representing Mayor Richard Neal of Springfield who is speaking at a graduation this evening and could not come.

I am also chairman of the Springfield Riverfront Development Commission.

I want to thank you for notifying us of this meeting. I might add since I was chairman of the Riverfront Development Commission I received no communication from your organization.

We have been asked to attend no hearing.

As far as I know no hearings have been held in the City of Springfield, and when the legislature had a hearing a couple of weeks ago, they didn't notify us.

We heard about the meeting today through newspapers and we are the largest community on the Connecticut River in Massachusetts.

I might say that we are outraged by the proposal to divert water from the Connecticut River to Boston,

particularly when there are so many things that can and should be done before diversion is even considered.

In the western part of our country, before people realized what havoc diversion can cause, much of the Colorado River was whisked away to other states, leaving the lower part of the river nothing but a ditch.

We don't want that to happen here.

For the first time in fifty years, the Connecticut River is clean enough for us to use.

The City of Springfield is in the midst of a great boom. Development is going at a great pace.

At long last we can look forward to enjoying our river which, until about five years ago, was clogged with sewage, trash, and the entrails of animals from a local rendering plant.

All that smelly unhealthy stuff is now gone.

We cannot enjoy our river if it is reduced to nothing but a ditch. And once a diversion begins, the temptation to take more and more water will be inevitable.

Here are some measures which we insist should be implemented as soon as possible.

The first one obviously is of course the fixing the leaks.

This is such an obvious suggestion that we wonder why more progress has not been made in implementing it.

If cost is a factor, then it seems to us that the state, in cooperation with the local communities, should help to foot the bill.

All of the older cities in the state sooner or later may face the same probem. Too much time has already been wasted. It is time to get started on this gigantic project before another year passes because every year brings more building in the Boston area and more pressure on our water.

Every community, not just Boston, needs to embark on conservation measures.

These measures can only be implemented by way of state laws.

Here are some proposals for laws which be believe the state should enact.

One:

Require that water saving plumbing fixtures be installed in all new construction and all replacement construction in the state.

Steps should be taken to ban the sale of all plumbing fixtures in the Commonwealth that are not water saving

fixtures.

These measures would cost nothing and would save millions of gallons of water a day.

Two:

Put state limits on irrigation of lawns and crops.

Investigate the drip method of irrigation, which has been pioneered by Israel, and require that this or some other water conservation methods be adopted by all new and replacement irrigation systems in the Commonwealth.

This would not cost much either.

Three:

Require that irrigation, both crop and private household, be done only at night or within two hours of sunrise or sunset.

Much of the water currently being used for irrigation is lost by evaporation as it is hurled through sunlight on hot days.

This costs nothing and would save the water.

Four: Promote a program to mulch around trees and shrubs.

This holds moisture in the ground and lessens the necessity for irrigation.

Finally I want to say this:

One tends to think that diversion only affects environmentalists, fishermen or wealthy boat owners, and maybe these people can be ignored.

Nothing could be further from the truth.

There are thousands of people in our city and in other cities who don't have boats, who don't have summer places to which they can escape, and can't even afford to take a vacation.

But they can, and they do, take walks along the river.

They can, and they do, fish along its banks.

For the first time in half a century they can enjoy the Connecticut River.

You have no right to spoil this most invaluable resource.

As one man only half-jokingly remarked, they'll have another Shay's Rebellion if they try to divert water from the Connecticut River.

The Connecticut River belongs to the citizens of Western Massachusetts.

We should be able to keep it both for our use and for the use of all those people who will live here in the future.

Let us not be as foolish as they have been out West.

Thank you.

(Applause)

AID TO CONGRESSMAN SILVIO CONTE: My name is John (unintelligible.)

I am an aid to Congressman Silvio Conte who has sent a letter.

(Prepared statement opposing water diversion read and submitted.

FROM THE FLOOR: My name is (unintelligible). I live in Suffield, Connecticut.

I came here this evening as a representative of the Connecticut Watershed Council.

I want to congratulate all of you for doing one thing that has rarely happened in the whole history of the State of Connecticut.

You have come up with an issue that everybody can agree on, conservative republicans and democrats, businessmen and environmentalists.

Everybody can agree.

You have heard our Attorney General Lieberman say earlier that he had plans to be put in effect if there is any threat of diversion.

Thank you.

(Applause)

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Everybody can agree.

You have heard our Attorney General Lieberman say earlier that he had plans to be put in effect if there is any threat of diversion.

The General Assembly in Connecticut unanimously passed a resolution opposing diversion both in 1977 and 1979.

I have letters which I will not read.

I have letters from all of the Connecticut congressional delegation, from the republicans as well as the democrats, from congressmen as well as senators, opposing the diversion of the Connecticut River.

I also have a number of letters and resolutions that have been sent to the Watershed Council from selectmen's offices, mayors' offices of many of the communities in Connecticut, specifically those along the river.

I also have a resolution and letters from many of the major environmental organizations and business organizations in the state.

The Watershed Council is still receiving many of them. We will send them to you when we get them.

I will leave these here tonight for you to read at your leisure.

But I can assure you of one thing, and that is, that if you are deciding to divert Connecticut River water as an economical alternative, I can assure you that it will be your most costly alternative.

Thank you.

(Applause)

BOB WEINER: My name is Bob Weiner and I am a democratic candidate for the U. S. Congress, and I am here myself to show how I care about this issue.

Last week some friends and I went out to the Quabbin in preparation for tonight's hearing.

Jon Souweine was very helpful in alerting a number of people of this very important issue, and here is what we found:

We found, coming off the major Quabbin administration building, these pipes, these rocks, that were literally falling off the building.

And we found this pipe right here and we said to the maintenance crew where does this come from and the maintenance staff said, it fell off.

It fell off!

He said the whole place is caving in.

And that posed some interesting follow-up.

I said what about the maintenance underground, thirty feet underground, that takes the water out of the Quabbin to Boston, has any maintenance been done there, and he said no, virtually none.

The very same maintenance as on this pipe and these rocks is what takes the water to Boston, and that is why ten to fifty percent of the water is lost before it reaches consumers in the Boston area.

Don't move a river! Fix the pipes!

Don't disrupt the environment! Fix the pipes!

Don't trampel the Town of Enfield which was done to five towns in the thirties.

Fix the pipes!

The study done for the Water Resources Authority, and I have read the entire one, should be junked.

Where is the vision in this?

I heard the argument because it was costly now.

Well, somewhere along the line gasoline cars had to be made more efficient.

We have Kollmorgen producing fiberoptics, a technology that can be used to repair underground pipes.

Fix the pipes!

What is in this study is moving some rivers and cut some trees, and that is not acceptable.

Get new, a new, more imaginative consultant.

The same old disruptive solution of diversion is unnecessary.

I work, I will work with federal water granting authorities as your congressman, but if you insist on diversion, I will be in that pipe in Northfield stopping it from ever being connected.

Now, how many commissioners here are from Worcester or West of Worcester.

If you could raise your hands.

One, and he is terrific, but there are eleven congressional districts in Massachusetts.

There are eleven commissioners. Four of the congressmen come from west of Worcester.

We in Western Massachusetts should have at least four commissioners on your board.

But above all, don't move a river! Fix the pipes!

(Applause)

MR. RALPH: Thank you.

FROM THE FLOOR: Mr. Moderator, is it time for the real people?

MR. RALPH: I hope so. I believe we have just one more person we would like to get in.

COUNTY COMMISSIONER ZACHARY: I'll be just as real a person as I possibly can.

I grew up in Texas, was born and raised where water you just kind of know is a precious commodity.

We wasted a lot of things down there, but we never did waste water.

I moved up here a bunch of years later and learned there was more water than you need, and that was before there was a problem with water.

Some years after I moved up here I was privileged to produce a radio show for national public radio, and one of the things I looked into is what happened to the Quabbin Reservoir and what happened to those towns that were drowned when the Quabbin was formed? And you know what? What we learned was that people began to realize that the Quabbin way back then was not needed.

That there were these other alternatives way back then and they were not considered.

But the public consciousness had begun to be raised and the consciousness even of the politicians began to raise.

And you know what happened?

The political protests kept on and so forth, and it was found that those many towns were drowned before they ever fully could save themselves.

We don't want that to happen to us.

We are in that process and we must not go too far because it is the future of our entire Commonwealth.

I would like to say that if you ever intend to go through with this diversion, we as the county commissioners will be joined with other county commissioners, with other Western counties as well as with Connecticut, and we'll sue the hell out of you.

(Applause)

MAYOR SEBASTIAN GARAFALO, CITY OF MIDDLETOWN: Good evening.

My name is Sebastian Garafalo. I am the mayor of the City of Middletown, Connecticut.

Our community is bordered along its eastern side by the Connecticut River.

We are therefore most interested in maintaining the quality of this important resource, as well as its scenic beauty.

Our governing body unanimously endorsed a resolution at their meeting last night.

As you will hear from our testimony, we have many concerns regarding the proposal to divert the Connecticut River in Massachusetts.

These concerns include economic, envrionmental, the daily operations of our municipal government, and the livelihood of our citizens.

Municipal development and harbor improvement concerns:

In recognition of the potential for the Connecticut River and its adjoining lands for public oriented activities, the City of Middletown, through its Harbor Improvement Agency, began in 1972 the process of preparing plans and development objectives.

In June of 1979, six years after the first waterfront development plan was prepared, Harborpark was dedicated to the citizens of Middletown for varying forms of recreation and leisure activities.

Several years later, Harbor Park Restaurant opened in a city-owned building.

Today our park area is the site of numerous rowing regattas, annual festivals, excursion cruises, fishing, picnicking, strolling and other leisure time activities.

Harbor park is unique because it is the only public park along the Connecticut River in the State of Connecticut where a community has undertaken and completed a restoration project using local, state and federal resources for the common and public good.

Middletown's Harborpark was designed with the knowledge that the river must occasionally exceed flood levels.

The boardwalk elevation was set so that on the average it would flood one percent per year.

The docking systems were also designed for the rise and fall of the river's tides.

Recognizing that the job is not complete, the city recently adopted a revised comprehensive plan for its waterfront encompassing a four mile stretch along the Connecticut River.

This new study considers both private and public lands, roadway improvements and the railroad paralleling the Connecticut River.

The impact upon water transportation and recreational pursuits are other important issues.

Our part of the river often sees tour boats as well as private recreational watercraft on a regular basis.

Our city hosts the annual head of the Connecticut Regatta each Columbus Day weekend.

Last year 490 shells were on the river with over two thousand athletes, young and old.

In addition, the Connecticut River raft race is annually run just below Middletown.

Because the City of Middletown recognizes the character of the Connecticut River for what it is and has designed around that character and, further, because we plan to do more to enhance the usability of the river, we are vehemently opposed to any manipulation of river flows through a diversion to Quabbin Reservoir via Northeast Utilities hydroelectric facility at Northfield, Massachusetts.

The Connecticut River is a tremendous recreational rsource for the City of Middletown and surrounding area.

It serves as an important quality of life indicator for all those who enjoy it.

Years ago, the city purchased land along the river and developed it into a park.

Available to all is a boardwalk, picnic areas, docking facilities for pleasure boats, as well as cruise vessels, volleyball and badminton courts, crew houses for Middletown High School and Wesleyan University crew programs, and docks for the launching of crew shells.

Harborpark has become a popular fishing spot on the Connecticut River, serving not only Middletown residents, but those of nearby landlocked communities.

Thanks to a multifaceted water quality effort over the

past decade to cleanse the Connecticut River, the fishing is improving.

Year round people take advantage of the facilities for fishing, boating, picnicking, jogging, walking or just relaxing.

I am very concerned about the possible effects the proposed diversion will have on these activities which are enjoyed by so many people.

(Applause)

LEON VINCI, CITY OF MIDDLETOWN DIRECTOR OF HEALTH: My name is Leon Vinci.

I am city director of health.

I would like to take a few minutes to offer the following comments.

Both the quality and quanity of water in the Connecticut River as it reaches the Middletown area are most important.

Water quality translates into a safe and wholesome habitat for fish and other water fauna and flora.

Quality is also closely linked to quanity in that numerous municipal and industrial sewage treatment plants and wastewater facilities presently exist on our waterway between the Quabbin Reservoir area and the Connecticut

River's famous bend in Middletown.

By reducing the quanity of available water for dilution and mixing needs, the discharges will undoubtedly have a negative impact.

That can impact the delicate balance which exists in accordance with current river volumes.

In addition, what if an oil barge, which frequently travel up and down our river, springs a leak.

A reduced volume of river water could promote a worse catastrophe than with higher volumes.

Still another concern we have relates to the cooling properties which the river provides to wastewater from the Connecticut Yankee atomic plant, just downstream from our city.

This power production facility has records of their discharge cooling waters impacting the river as much as ten to twenty degrees hotter.

With a reduction in the quantity of water flowing downstream, an even wider range of temperatures may be experienced.

The City of Middletown is opposed to any changes in the character and quality of the Connecticut River other than those which will environmentally purify the water.

We believe that the proposed diversion into the Quabbin Reservoir will affect the water quality, the water temperature and the chemical makeup of the Connecticut River.

These changes will ultimately adversely impact the river, particularly the lower Connecticut Valley communities, which are tidal in nature.

Diversion threatens to change the quality and quantity of fish life and wildlife.

Any proposed disruption to the normal state of the Connecticut River must have an adverse impact upon the fragile, ecological system within the river.

One may argue that the City of Middletown has been burdened by flooding of the Connecticut River in the past.

We would counter-argue that floods are necessary, useful and God-given for the ecological balance of the Connecticut River.

To summarize, the City of Middletown is proud of its accomplishments in restoring and renewing the riverfront for public and private activities which are harmonious with the river.

We anticipate continued development over the next ten to fifteen years.

We must oppose anything that would threaten the compatible uses of and the ecological systems in the Connecticut River as we now know it.

We must protect our own present and projected public works supplies.

Therefore, in light of these considerations and on behalf of the citizens of the City of Middletown, we urge you to heed the Attorney General of the State of Connecticut concerning this issue.

We respectfully request that water not be diverted from the Connecticut River and other alternatives be explored.

(Applause)

HENRY WHITE, MILLERS WATERSHED COUNCIL: Mr. Secretary, members of the Quabbin Reservoir Authority.

My name is Henry White. I am here as the chairman of the Millers River Watershed Council, Millers River and contributories in eastern Franklin County and western counties.

Over the years the council has been dedicated in its work toward the preservation and enhancement and balance of recreational and economic as well as envrionmental concerns of the river basin, and during the past six months the

council has developed a position statement which regards the interbasin transfer of water, and it is a two-page statemen.

In the interest of time I will not read it in its entirety into the record and just probably summarize it and briefly comment on it.

Perhaps the most important statement in the paper is that based on all evidence available to us, the Miller Watershed Council is adamently and unequivocally opposed to the diversion of any waters from the Millers River basin.

I think that basically states our position.

There are ten points here that we make and make in detail, including fish, recreation, groundwater, property values, reduction of flow in the Connecticut River, and particularly the Millers River management plan which was a cooperative two and a half year joint effort with the Millers River Watershed Council and the Scenic River Program of the Department of Environmental Management.

And that plan makes recommendations for each basin community to assist them in enhancing both the economic and recreational activities, as well as environmental awareness.

So in view of these kinds of concerns, we urge you, the Massachusetts Water Resources Authority, to abide by the River Basin Transfer Act.

Thank you.

(Applause)

SAM SPAFFORD: Mr. Hoyte, members of the Water Resources Authority.

My name is Sam Spafford, and I am with the Clean Water Act Project which is a citizen based conservation organization working in both eastern and western Massachusetts.

Over the past three and a half months we have been going door-to-door petitioning and organizing citizens in the towns of eastern Massachusetts and in the towns along the river in western Massachusetts that are the subject of the study, and I would like to take a few moments this evening to let you know what we found out, what their concerns are.

First the work we have done in Boston are with Boston staff.

We have gone to Belmont and also the Town of Lexington which, as you know are both, towns that are served by the Massachusetts Water Resources Authority, with water from the reservoir.

And in the Town of Belmont a resolution was passed

opposing diversion of not only our river out here, but of any state rivers and promoting conservation and improved watershed management of the existing system.

In the Town of Lexington a similar resolution is pending right now.

In Western Massachusetts our experience has been over the past three and a half months, first of all, in going door-todoor as I said, petitioning from as far south as West Springfield to Northfield and Gill, we have received signatures and support from almost six thousand citizens.

I think that expresses pretty soundly for you how people feel.

By the fall we feel that we will have reached every town along the river with our door-to-door efforts.

Just a bit about the people, who we spoke to and what was on their minds.

Of course everyone was very strongly opposed to diversion, but we were very impressed by how much people knew about the issue.

People know that the Boston area water system has a lot of leaks. A third of the water is leaking.

People know that.

And people know that a lot of water is wasted in

Eastern Massachusetts, and that water can and should be conserved by industrial and domestic users.

People also realize, especially the residents I met, many, not one of them, but the people who have lived there for the past fifteen years or longer, the river has been cleaned up and they are thankful for that and people take great pride in the fact that shad and especially salmon now are running up the river.

They know that any diversion would reverse this trend and also as far as the Quabbin Reservoir, there are many people who go up there fishing, numerous people who enjoy the prestine views and the abundant fish and wildlife that exist in there, which would be, according to many studies be eliminated by way of infusion of water from the river.

What bothers people also is related to the issue of fairness.

It would be one thing if Eastern Massachusetts really needed the water.

That would be one situation.

Of course no one wants those towns to experience severe water shortages.

However, this water can be conserved. Leaks can be repaired, and so forth.

People know that out here.

And these issues will have to be addressed before we can hear talk of diverting cherished resources.

It just is not fair and we are not going to stand for it.

And this is why people also not only oppose the diversion of the rivers out here, the Connecticut River, the Millers River and the Tully River, but also are starting uniting with people from other parts of the state opposing diversion of any of the state's rivers, the Merrimack and others we have mentioned.

That is why I have been able to form a state-wide coalition that includes those people from those water regions who are prepared to stand together over the long term and to insure that on-going leak repair and mandatory conservation and the improved watershed management, protection of our resources is undertaken, so we can put this issue to rest permanently.

Thank you very much.

(Applause)

MR. RALPH: I would like to ask you to limit your comments to three minutes so everybody gets a chance to

be heard.

I know it is difficult.

FROM THE FLOOR: You have heard evidence that people are opposed to diversion of any of the state's rivers, nor diversion of water into your town.

What they all want you to do is the same thing:

They want you to first fix the leaks.

They want you to do conservation and they want you to protect watersheds.

Now, you have told us we are planning to do leak repair and we are planning to do conservation.

I am telling you that it won't work the way you are doing it, and I think what you will do is come back and say we tried to repair and tried to conserve, we didn't save enough and we still have to divert, and the reason that I think that is that you are not enforcing the repair in the MWRA communities, you are not providing the money; the towns then still have to put up half the money themselves and they don't have the money.

What you need to do is to put all the money up front and then towns can borrow from you and can pay you back out of the money that they will save by repairing these systems.

and you need to make sure that the leak repair is on-going.

The towns that you mentioned that have saved water are towns that have repaired their leaks over more than a one year period.

You need to make sure that people in the east use showerheads and toilets that don't use a lot of water.

You need to make sure that industry is not wasting water.

Boston is known as using river water to cool its generators. That is criminal.

You need to change the price structure, the more you use, the more you pay, not the more you use, the cheaper it is.

That doesn't encourage conservation.

If you repair the leaks and pursue conservation properly, we will support you, and we will work with you.

And some people of this state, this whole country, need to provide to protect waters and manage its water much better, and you people can do this right.

Massachusetts can be an example for the whole country.

Thank you.

(Applause)

JAMES GREEN: My name is James Green. I am chairman of the Athol Conservation Commission.

This is one of your proposed donor communities.

I am also second vice-president of the Swift River Valley Historical Society which included the towns tht were taken for the Quabbin Reservoir.

I am also a member of the Friends of the Quabbin organization.

I would like to point out that these proposals represent the latest step of a matter addressed in my research in producing a book on the history of the Boston water supply and Quabbin Reservoir.

(Statement opposing river diversion read and submitted.)

FROM THE FLOOR: I am a member of the Friends of the Quabbin and the Swift Historical Society.

If the Connecticut is diverted, down goes the quality of the drinking water.

The fishing in the Quabbin will be destroyed, the seagulls will go, the water life will be destroyed.

Fix your leaks first.

HENRY GIBBS: Mr. Chairman of the Board, members of the Board.

I am glad you are up there and I am down here.

My name is Henry Gibbs and I am a member of the MWRA Environmental Board, the same board that created the MWRA which is the Authority that created the advisory board.

The advisory board consists all of the user communities with representatives from the user communities.

And oddly enough I have a lot to say, but I say tonight you would think that the eastern part of Massachusetts would be focusing on the diversion, but they are not.

These, Mr. Chairman are, very briefly, some of the key alternatives that we are looking at.

The first would be demand water management by actually protecting user sources.

We feel very strongly that those alternatives would provide adequate supply for the future.

Mr. Chairman, to summarize under demand management improved management of existing water supply should be the guiding principle for long term planning policies, and the communities should be actively involved in planning to implement key demand management.

A plan for reduction of unaccounted water should be

developed and aggressively implemented at all levels.

Such a plan should include an adequate program for metering as well as leak detection and repair.

I want to thank you for coming here. A lot of what I was going to say has been said already.

I would like to make one comment, and that is the advisory board does have a formal comment which will be submitted and will be forthcoming.

Thank you very much.

(Applause)

JOHN SULLIVAN: Mr. Secretary, members of he Board.

I am John Sullivan, I am director of the Boston Water and Sewer Commission and I would like to share my comments in this form rather than share them down in Gardener Auditorium.

The water and sewer commission directs over one third of the Boston communities supplied by the Massachusetts Water Resources Authority and therefore has a strong concern representing the people it serves and the MWRA long range water supply.

(Statement read and submitted.)

GORDON MAX: My name is Gordon Max. I am going to try to cover a few things that have not been covered so far with the problem of diversion.

And first what actually realistically happens on a long term basis when the diversion occurs. There are diversion plans offered with specific rationales, but then often plans turn out sometimes with surprising results.

One place we can look at is the central valley project in California where water is diverted from northern to southern California.

In the early 1950's before transferring to the United States Geological Survey, I worked as an engineer and groundwater geologist with the U.S. Bureau of Reclamation in California on the central valley project.

At first I wholeheartedly supported the central valley project.

I could not see how anybody could be against it until I realized what we were legally doing was to give Los Angeles more water to satisfy their needs. They would expand further, require more water and so on, and this was a cycle of supply and growth.

The result was the inhuman smog-filled complex that we

call Greater Los Angeles.

There is an analogy between the ravenous appetite and the cities' increasing demand for water. If the pipeline is open and the city needs more water, it will take what it needs one way or the other.

Environmental issues mean nothing when the city controls the pipeline valve.

This is exactly what happened in Los Angeles.

They had a supposedly binding legal agreement with Arizona regarding the Colorado River water.

They just took the water and it was actually years before this problem was finally resolved in the Supreme Court.

In conclusion a long term basin diversion is a tragic mistake.

The only and probable best answer is to obtain water from local sources and options, most of which have been discussed by other speakers.

They mentioned pipes, watershed management, local groundwater, surface water.

However, there are two that have not been mentioned, and these are certainly not solutions in themselves.

One is artificial recharge and the second is salvation

of water that is lost by excessive transpiration and evaporation.

Now both these measures, artifical recharge have been used very successfully in the Western United States.

They have new programs here in the East, but they have not been used, primarily because engineering companies are not used or accustomed to this technology.

However, all the options which vary from low to high expense should be implemented because in the long run it can save environmental and economic consequences.

If diversion is implemented, that can affect both the donor and the receiver communities collectively.

Thank you.

(Applause)

ROBERT O'CONNOR: My name is Robert O'Connor, superintendent of the Quabbin Reservoir.

I have a prepared statement from Water Commissioner William J. Geary which I would like to read.

The Metropolitan District Commissioner William J. Geary wishes to be recorded as strongly opposed to the option under consideration by the Massachusetts Water Resources Authority to divert the Connecticut River.

This has been Governor Dukakis' consistent policy and Commissioner Geary's position during his three and one half years as commissioner.

The commissioner understands that the MWRA's long range study will be helpful in gathering data for the future water needs of the MWRA.

However, Commissionere Geary fervently believes that as a Commonwealth policy document, the study will be fundamentally flawed because it perpetuates a century old approach of regional competition over water supplies.

As a matter of equity, environmental sensitivity and economic efficiency, the Commonwelath can no longer allow the water needs of one region to be quenched at the expense of other regions.

It is not fair, environmentally responsible or economically effective to transport Western Massachusetts water seventy miles east while simultaneously denying an emergency request from Amherst for a share of its own region's natural resource.

It equally makes no sense to tap the Plymouth Aquifer to transport precious water north and bypass parched Brockton in the process.

Finally it makes even less sense to divert the Merrimack

River at a time when communities in and contiguous to the Merrimack Valley have their own water needs.

In essence, what Commissioner Geary has proposed is an end to regional warfare for water and a beginning of an enlightened statewide water supply policy.

Commissioner Geary advocates that the Commonwealth undertake a comprehensive, coherent statewide water supply study to assure that the water needs of all communities and all regions of the state are adequately met.

It is time to stop using the methodology of the last century to plan the water needs of the next century.

Furthermore with respect to the near term needs of the MWRA, Commissioner Geary has consistently advocated that more dramatic action be taken to enforce conservation; require communities to repair leaking pipes and impose demand management procedures as well as reactivate abandoned and neglected indigenous water supplies.

All of these measures must be implemented long before the MWRA can even consider river diversion.

JOHN RIDER: I wonder if the fact that the equipment is turned off is some sort of a sign, but anyway, my name is John Rider, executive director of the Connecticut

Audubon Society.

We have three thousand members and are the largest environmental and conservation organization in the state.

(Statement opposing river diversion read and submitted.)

Thank you for coming to the West. I hope you have enjoyed your stay. I hope you heard the message.

(Applause)

ROBERT CROOK: My name is Robert Crook. I am the legislative director of the Connecticut Sportsmen's Alliance.

I am here on behalf of sixteen local Sportsmen's clubs, twelve statewide organizations comprising approximately forty thousand members.

We are opposed to any diversion of the Connecticut River to include the Millers and Tully Rivers.

Water diversion in any form from any river must have an ecological impact.

Sportsmen in Connecticut are, and I cannot state this strongly enough, simply appalled that potential ecological impacts on the Connecticut River in both Massaachusetts and Connecticut, but particularly Connecticut, have not been

comprehensively studied.

Conflicting statements from the consultants that prepared the Connectciut River diversion option and the summary report are sufficient to cast doubt on what the real impact will be.

The first stated no downstream impact aside from minor water fluctuation in the immediate area.

The second, that pumping will extend beyond the immediate area, potentially extending to Long Island Sound.

Using common sense, the pumping of twenty percent of river flow during specific periods, dictates some potentially significant environmental impacts.

We are concerned with salt water intrusion.

Reduced fresh water flow may allow salt water to travel further up the river from the Sound.

Aquifers, fisheries, fauna and flora would be affected.

We are concerned with surging.

Pumping twenty percent of flow could affect the seventy plus treatment plants waste assimilation, fisheries, estuarine processes and recreation.

We are concerned with decreased freshet flow, which may reduce the plume of the Connecticut River into Long Island Sound which acts as a beacon for anadromous fish.

It should be noted that Massachusetts and Connecticut have spent millions of dollars on Salmon restoration.

Water diversions are not new.

Connecticut sportsmen and other conservationists fought successfully a diversion of the Farmington River, a Connecticut River feeder, by Metropolitan District Commission of Hartford.

That proposal was unacceptable even though the water used would eventually continue to feed the Connecticut River.

Under the MWRA proposal the Connecticut River water is lost forever.

We sympathize with Boston in their lack of drinking water, but there are other solutions.

We note that one third of all water currently delivered to the system is lost, which is well above the industry standard.

We would suggest water conservation, adoption of other alternatives and most important, correction of the water loss.

It is outrageous to ask for more when what you have is improperly used.

We recognize that both financially and politically, the

bottom line is dollars.

Diversion is obviously the cheapest solution in a financial sense, but we are appalled by the lack of consideration for potential environmental impacts, consideration of your neighbors, and apparent long term neglect of your water system.

Politically that is why we are here, to demand appropriate corrective action to the current system and consideration of the environment, your downstream neighbors and the people of Western Massachusetts.

Until those actions are accomplished, the Connecticut River diversion or the Millers and Tully diversions should not be considered as options.

(Applause)

LISA CAMPBELL, SIERRA CLUB: Mr. Chairman and members of the Board.

My name is Lisa Campbell, and I am the chairperson of the Massachusetts Chapter of the Sierra Club with ten thousand members throughout Massachusetts.

We of course oppose the diversion of the Connecticut River or the Millers and Tully Rivers for the same reasons that have already been stated.

(Statement read.)

EDWIN B. CADY, JR.: My name is Edwin B. Cady, Jr.,

I am president of the Massachusetts Forestry Association.

The non-profit Massachusetts Forestry Association is dedicated to conserving the forests of Massachusetts.

Based on a review of available documents and discussions with Chief Forester Spencer, we encourage accelerated forest management of the Quabbin Reservoir, and others, under the present system of strict supervision and with an increased budget and more foresters, as a means to safely increase water yield without environmental harm while increasing the quantity and quality of the forest resource.

At the same time as head past and executive director of the Massachusetts Wood Association, I can give you reasonable assurances that you will not have any objection from the private loggers of Western Massachusetts to accelerate forest harvesting, particular as it is done by private groups.

In addition I have been asked to speak for the selectmen of the Town of Woburn who have submitted written statements

and affirm their opposition to the diversion of the Millers and Connecticut Rivers.

(Applause)

FRANKLIN COUNTY PLANNER: I am here on behalf of the Franklin County Commissioners and Franklin Planning Board.

We are in the process of still preparing our statement which will be submitted in writing to you expressing our concerns about any proposed diversion of the Connecticut, the Millers and Tully Rivers.

Thank you very much.

SUSAN GRANGER: My name is Susan Granger.

As a result of the lateness of the hour, I would like to submit my written testimony.

MR. RALPH: Thank you. We do appreciate it. The staff in the back will take it.

COLEEN WITHGOTT: My name is Coleen Withgott. I am President of the Allen Bird Club of Springfield, which owns the Fannie Stebbins Memorial Wildlife Refuge in Longmeadow.

The Stebbins Refuge encompasses 325 acres of floodplain habitat and two miles of Connecticut River shoreline.

It provides important habitat for resident wildlife and for migratory birds, many of which depend upon the river and its associated marshes.

I am speaking tonight because the Allen Bird Club believes that the Connecticut River alternative does not fully address the ecological consequences of skimming off the so-called excess flood waters.

For example, what changes will occur in water quality down in our area, at the Connecticut state line?

How will changes in water quality affect aquatic life, and the animals that depend upon it.

Will we lose the spring floods that perennially wash over our floodplain, enriching the soil and replenishing the marshes?

These questions and others like them must be fully answered by exhaustive ecological studies before the Connecticut River alternative can be considered as a viable option for the Massachussetts Water Resources Authority.

Thank you very much.

(Applause)

ROBERT BARRE: My name is Robert Barre and I am the director and treasurer of the Millers River Watershed

Council.

I have been asked by the Watershed Council and the Board of Selectmen of the Town of Athol to submit this paper to you.

This letter will explain our opposition to the proposed diversions of the Connecticut, the Millers and Tully Rivers.

SHARON O'BRIEN: My name is Sharon O'Brien and I am an attorney from the Town of Easthampton.

I am a candidate for respresentative of the Second Hampshire District, the Towns of Easthampton, Hadley and South Hadley.

My family has lived alongside the Connecticut River for five generations, and I would register my opposition to divert the Connecticut River as an option presently being considered by the Water Resources Authority.

The proposal to divert the river flows in the face of common sense should absolutely not be given further consideration to solve the long term water needs in the eastern part of the state.

We in Western Massachusetts have in the past made sacrifices to provide for the wellbeing of the Eastern part back in the 1930's.

The towns of Enfield, Greenwich and Prescott were obliterated to make way for the Quabbin Reservoir to supply water to the Greater Boston area.

(Statement in opposition to the diversion read.)

FROM THE FLOOR: I am Spencer (unintelligeable), and I am director of the Connecticut Watershed Council.

I would like to state our opposition to the proposed diversion of the Connecticut River.

We will make our presentation in writing.

GEORGE WALL: I have reduced my statement to one short statement, and I will pass it on to you.

But I would just like to summarize. I want to say the final paragraph of my statement, and this is by George Wall, candidate for state repreentative for the second Hampshire District:

The solution is not going to be found by pitting Eastern Massachusetts against Western Massachusetts.

It is going to be found by both sections of the state working for a common solution.

With some modification to the demand management alternative and a serious dialogue between eastern and

western legislators, this problem can be solved.

Thank you.

(Applause)

VIRGINIA JUDSON, SIERRA CLUB: My name is Virginia Judson.

I am conservation chair of the Connecticut Chapter of the Sierra Club, here to express our opposition to the proposed diversion of water from the Connecticut River into the Quabbin Reservoir.

We understand it has been assumed that this proposal would have no downstream impacts.

In the absence of a valid environmental impact statement, we find this conclusion unacceptable.

Changes in water level can have a significant impact on adjacent wells and argricultural activities, on the dilution of wastewater, and on anadromous fish which would be returning to the Connecticut at about the same time the diversion is expected to take place.

A decreased flow at this time would be particularly important in the vicinity of Haddam Neck where the plume from Connecticut Yankee extends across much of the river.

In keeping with the Sierra Club's commitment to the

protection and wise use of natural resources, we urge that primary consideration be given to the conservation option.

Water is too precious to waste in an area which has known shortages.

We believe losses throughout the system should be identified and reduced to a minimum.

We also support the watershed management option which would increase run-off into MDC reservoirs.

Thank you for providing this opportunity for us to express our views on this very important subject.

(Applause)

EDWARD KAYNOR: My name is Ed Kaynor.

I am with the Massachusetts Water Resource Research Center at the University of Massachusetts.

I have a four-page prepared statement which I have given to the staff, and I would like to comment on one point I don't think has been covered adequately, and I am sure Secretary Hoyte is aware and the members of the Authority are probably aware.

I would like to remind you that Massachusetts has a nondegradation code, I believe 314 CMR 4.04, which basically seems to me to say that you cannot put water of a degraded

quality into water of a higher quality.

Now of course the Connecticut at Northfield is class B water; the Millers, I am not positive if it is up to class B, but it is not class A, and the Quabbin Reservoir is class A water.

I guess the thing that bothers me about this is that the reports are -- all reports don't mention this, and you would think that even if it is not applicable, that at least they would mention that and say why it is not applicable.

It seems to me it would be just outright illegal for the Commonwealth to divert water under conditions of a nondegradation code like that.

Thank you.

(Applause)

CANDIDATE FOR STATE REPRESENTATIVE MORGAN BROMAN: My name is Morgan Broman from Easthampton and I am one of the people in line as candidate for state representative for the Second Hamshire District

I have a brief statement which I will give to the staff which makes some of the points that have been made earlier tonight.

I would like to say if you look at our tourism brochure

coming out of the State House, one of the things you see is a of the Connecticut River along with pictures of Williamstown, Boston, Cape Cod.

I don't think the people in the eastern part of the state want to destroy the natural resources of the people in the western part of the state.

My point is we can fix the leaks and keep the water of the Connecticut River where it belongs, in the Connecticut River.

Thank you.

(Applause)

BETH GREEN: My name is Beth Green. I am president of the League of Women Voters of the Springfield area.

The League of Women Voters has a long standing position in opposition to diversion of the Connecticut River.

Although river diversion appears as an inexpensive and easy method of providing more water for eastern Massachusetts, the League of Women Voters maintains that the impact on the environment for this region and those farther south of us has not been studied sufficiently.

The League of Women Voters states that diversion of the

river would disrupt the ecology along the river.

The flow of water downstream will be reduced, decreasing the water supply which is needed to recharge groundwater aquifers along the river. The water is also needed to dilute the waste from the sewage treatment plants along the river.

Alternative methods of providing additional water have not been sufficiently explored. There are realistic alternatives which should be given serious consideration prior to any exploration of diversion of the River.

Detection and repair of leaks in metropolitan Boston's water system.

Management of forests in the Quabbin Reservoir watershed to increase water yield.

Promotion of water conservation by households, businesses and industries.

Development of an effective drought management plan.

Protection and use of local water supplies in the Boston area.

Water is a precious resource. With rapid growth in population and industry, the unlimited use of this resource is no longer an option.

It has become a necessity that the public and those responsible for the public welfare become committed to

conservation while something of quality remains to conserve.

Thank you.

(Applause)

SIMON BAKER: My name is Simon Baker. I am a resident of Amherst.

I would like to make a comment on the report itself, the summary report which I reviewed. I noticed there was only two lines addressing the impact of diverting water into the Quabbin.

In the complete report, which I have also had a chance to look at, there is only a couple of paragraphs addressing this impact and this is clearly the major impact, the major adverse impact of the diversion in the whole.

I feel this is tremendous, the major impact in the whole project.

In the report they address the issue of three species of fish in the Quabbin.

There are approximately thirty species. Nobody knows for sure.

The diversion of water into the Quabbin will have a disastrous effect on all the fishing within the Quabbin, and not only the Quabbin, but the Wachusset River which is

connected to the Quabbin.

I live in Amherst. And in Amherst we have a similar problem. We don't have any water.

But we didn't try to divert the Connecticut River or the Millers or the Tully to meet our water supply needs.

We just used a moratorium on building in Amherst while we are studying and trying to solve the problem.

I ask you to consider all of the facts and all of the evidence and make a sincere effort to address the issues and save the state millions of dollars and save us years of aggravation by putting this thing to rest now. It will save us all a lot of trouble, a lot of money.

DAVID COHEN: My name is David Cohen. I am a resident of South Hadley.

I have a copy of the original letter sent to the commission. I am sure you received it, it is dated May 20, 1986.

So I just would like to say on behalf of the Board of Selectmen of South Hadley, they are not able to be here, that they are opposed to the river project and ask to please consider carefully alternative options.

Thank you.

(Applause)

FROM THE FLOOR: Good evening.

It is encouraging to have seen so many people from Western Massachusetts to take this opportunity to express our sincere concerns for the greatest New England River, the Connecticut.

I would like to touch on three points, and it is only three short handwritten pages.

(Statement in opposition of diversion read and submitted.)

MR. RALPH: Thank you very much.

(Hearing terminated lt 10:30 P.M.)

* * * * * * *

I, Helga Ragle, Stenographer, hereby state that the foregoing is a transcript of my stenographic notes to the best of my ability.

Helga Ragle

COMMONWEALTH OF MASSACHUSETTS

MASSACHUSETTS WATER RESOURCES AUTHORITY

WATER SUPPLY STUDY and
ENVIRONMENTAL IMPACT REPORT - 2020

PUBLIC HEARING held at Merrimack College, North Andover, Massachusetts, in the McQuade Auditorium, on Thursday, June 5, 1986, commencing at 7:20 p.m., on:

MASSACHUSETTS WATER RESOURCES AUTHORITY
LONG-RANGE WATER SUPPLY EIR-2020.

Before: Michael Gritzuk, Executive Director and
Acting Chairman

Steven C. Davis, Principal Civil Engineer

Michael Ralph, Moderator
Paul Anderson
Thomas Arnold
William Brutsch
Lorraine Downey
John Carroll
Margaret Riley

PROCEEDINGS

MR. RALPH: My name is Michael Ralph. I am the Director for Public Affairs for the Massachusetts Water Resources Authority.

I want to thank everybody for coming here tonight.

We are here to get your public comment and testimony on our long-range water supply study that has been completed for the Authority. We are here to get your testimony and comment on this. But, I think, before we do, for the sake of just five or ten minutes each, I would like to introduce Michael Gritzuk, who is the Executive Director of the Water Resources Authority, to give you an overview of, one, what the study is about. And, I guess, more importantly, what MWRA is about.

And I would like to introduce Mike Gritzuk, at this time.

MR. GRITZUK: Thank you. And good evening ladies and gentlemen.

On behalf of the Board of Directors of the Massachusetts Water Resources Authority, I would like to express our appreciation of you coming out tonight, especially in this rainy weather and especially with the competition that we have with the Celtic's game . So, we do appreciate your

coming out.

What I would like to do, as quickly as I can, is present a statement to you on the purpose of the long-range water supply study that is underway, how this Authority has gotten into that study, some of the initial findings of the study, and where we are going with the study. So, allow me to begin.

Recently, after six years of research and analysis, a summary of the long-range water supply study's fifty reports were published. Before any decisions are made, the Massachusetts Water Resources Authority Board of Directors is holding this meeting to learn what the public thinks about the study and the options analyzed, what concerns you have, and what your suggestions are to the Board members as they begin their review of the issues, and prepare to make water supply policy decisions, which will effect water use into the 21st century.

First, I want to outline to you the framework in which these important issues are being discussed, what this new Authority is, what the water study covers, and what steps are ahead in the planning process.

The Massachusetts Water Resources Authority or, let's say, MWRA, was created by the legislature in 1984. In 1985, MWRA assumed all sewer functions and some water

functions that had previously been provided by the Metropolitan District Commission, or MDC. Today, MDC retains ownership and maintenance of present and future water, watersheds and reservoirs. MWRA distributes this water to forty-six cities and towns, thirty-six in the Boston Metropolitan area, and ten others, located in the vicinity of system conduits and reservoirs.

From time to time, the Authority also is called upon to serve nearby communities, which have temporary emergencies.

We provide water to the homes of approximately 2.4 million people, and to the jobs of many others. The supply system is an excellent one, reflecting the foresight of the early planners.

Quabbin Reservoir storing water from the Connecticut River Basin and the Wachusett Reservoir storing water from the Merrimack Basin, has a total capacity of 477 billion gallons.

Since 1969, there has been concern that the demand on the system regularly exceeds the reliable safe yield. As responsible managers of the water supply for half the citizens of the Commonwealth, the MWRA and MDC are faced with the problem of bringing supply and demand into balance.

Concerning the long-range water supply study and the environmental impact report, MWRA assumed from the MDC the lead role in the difficult but essential task to plan prudently and well in advance to meet water needs in the future.

The long-range water supply study and the environmental impact report project began by the MDC and now continuing under MWRA covers a forty-year planning period, ending in the year 2020.

The consulting firm of Wallace, Floyd, Associates, assisted by twelve subconsultants of various technical specialties, has conducted the study. The scope of the study was determined by the Massachusetts Environmental Policy Act, for short, called MEPA, with broad public input into the issues to be addressed.

The study was begun in response to the 1978 State water policy direction that the MDC should study the use of Connecticut River water and assess the impacts of doing this. And also, study alternatives to this project, including a no-action alternative and demand management.

An unusually large public participation component accompanies this study. A Citizens Advisory Committee, called the Water Supply Citizens Advisory Committee or WSCAC, was statutorily established under MEPA. WSCAC was

funded originally by the MDC and now by the Authority. WSCAC has reviewed each step and offered input and advice since the initial scoping of the study.

In addition, the consulting contract includes a broad public information program.

The intent of the study is to produce a forty-year plan for the metropolitan water supply and an environmental impact report on the alternatives, included in the scope issued by MEPA, as required by Massachusetts law.

The study includes three main elements. They are estimates of potential demands upon the system to the year 2020; analysis of present supply capacity; and assessment of nine options to meet demands that may exceed present supply capacity.

The study, which has not as yet been approved by the Authority, estimates that by the year 2020, there may be a demand for water from this system of 150 million gallons per day more than present supplies can provide.

These baseline demand projections incorporate an estimated reduction of 30 million gallons per day from ongoing State water conservation programs now in place and expected to continue.

Nine detailed assessment reports, each of which will be included in an appendix to the draft environmental

impact report, have been published. They assess environmental, social, economic and engineering aspects of nine alternative options to increase water supplies and reduce demand.

The nine alternative studies studied, are as follows:

Demand Management
Watershed Management
User Sources
Upper Sudbury Watershed Alternatives
Connecticut River
Millers/Tully Rivers
Merrimack River
Plymouth Aquifer, and
No Action.

Desalinization was investigated early in the study and dropped from further analysis with the approval of MEPA, because of its high cost.

At this point, I would like to, as briefly as possible, summarize the nine options, starting with demand management.

Demand management was the first alternative study. Research was conducted on water conservation experienced throughout the nation and present system water use was

analyzed to determine what techniques would be most effective to reduce water use in this system.

A demand management plan developed from this analysis has a potential for a savings of 30 million gallons per day, and that is in addition to the 30 million gallons per day savings in the baseline.

The MWRA is presently reviewing this plan to determine the appropriate program for its system.

We are already working to institute rate structures that encourage conservation and have initiated design work to pilot-test a domestic device retrofit program, to accelerate installation of water-saving devices in households. We are working with our communities to develop a systemwide leak detection and repair program. Many of our communities have such programs already in place.

I especially want to mention the achievement of Boston, our largest user community, which has made remarkable progress in leak detection and has already saved 50 million gallons per day in leak detection and various other demand management efforts.

MWRA is working on programs to increase the efficiency of our system's intrastructure. We are also continuing the substantial water conservation education and information program begun by the MDC.

User sources. In the user sources alternative, twenty-eight small sources, located in user communities are reviewed. Most of these are ground water sources. The MWRA Board will carefully consider which additional water sources it may be feasible to develop within user communities. The yield from these sources could be as high as 10 MGD, but is expected to be substantially less.

Watershed management. The watershed management alternative assesses how changes in vegetation on MDC-owned watersheds might increase water runoff, while maintaining aesthetic, environmental and wildlife values. The estimated yield is 50 million gallons per day. Watershed management is already a program and plan of the MDC.

The Sudbury watershed. The Upper Sudbury watershed alternative assesses reactivation of MDC's Sudbury Reservoir system, which is presently used only in emergencies. The addition of a water treatment plant at Sudbury Reservoir would increase present, on-line supplies by 20 million gallons per day. This is also the subject of a separate environmental impact report.

Now, the river alternatives. Using part of the high flows of the Connecticut, Millers/Tully or Merrimack Rivers has been examined and yields were estimated, using specific environmental and legal constraints.

THE MWRA views these proposed river diversion alternatives as a last resort alternative.

Concerning the Connecticut River, the Connecticut River alternative was assessed at a yield of 63 million gallons per day, coming from the main stem of the river.

The Millers/Tully Rivers are in the Connecticut watershed. This alternative could supply an additional 38 million gallons per day.

The Merrimack River alternative was assessed at a yield of 120 million gallons per day, through a water treatment plant in Tyngsborough.

The Plymouth Aquifer. The Plymouth Aquifer alternative assesses the impacts of pumping 15 million gallons per day of ground water from wells in Plymouth to the distribution system in Quincy, some thirty-seven miles away.

And lastly, the no action alternative. A no action baseline is a part of every environmental impact report. This study examines what would happen if demands rise to the amount estimated, but no new supplies are developed.

One response would be to build a water treatment plant for present sources. This would allow a lower reservoir drawdown and make an additional 30 million gallons per day available.

Let's talk a little bit about the steps ahead. The study, at this time, makes no recommendations. No decisions have yet been made by the MWRA as to future water needs, policies or plans. The Board of Director deliberations on these matters will take some time. They will carefully consider the public comments, as they decide how much additional water, if any, will be needed.

If additional supplies are necessary, they will establish criteria for selection and choice-preferred alternatives.

The MEPA and EIR process. The Board's decisions will be reported in the draft environmental impact report submitted to MEPA. At that time, MEPA will have a formal comment period and hold public hearings. This will give the public an opportunity, again, to comment on the water supply plan developed by the Board. A final EIR will then be prepared, incorporating any additional information that MEPA requires.

Other Federal and State approvals. Federal environmental requirements will apply to the alternatives, including, in some cases, an environmental impact statement. Several Massachusetts laws, including the Authority's Enabling Act, the Interbasin Transfer Act, and the Water Management Act regulate new supply development.

The Department of Environmental Quality Engineering must approve any new water supply. MDC will be involved as the owner of any new source.

The Water Resources Commission must approve any interbasin transfer, and legislative approval must be obtained for any proposed new water sources.

Several conclusions. As I conclude this overview of the MWRA planning effort, I want to assure you of three things. First, MWRA is committed to conserving water and is already moving to do this.

Secondly, MWRA is dedicated to protecting and improving natural resources, whether in Boston Harbor or in the Merrimack River Valley or the Connecticut River Valley, or anywhere. The MWRA will not pursue any project that harms the environment or deprives a supply area of needed resources.

And finally, MWRA will fulfill its essential public purpose, to provide safe and sufficient water supplies to the 2.4 million people whose homes we serve, to the many others whose jobs depend on this water system, and to those who will need this water supply in decades to come.

We intend to accomplish this mission in a responsible manner, and we ask for your advice and assistance in the important decisions that lie ahead.

Thank you.

(Applause.)

MR. RALPH: At this time, I would just like to take a minute and introduce our Board of Directors who are present here.

Starting on the end is Lorraine Downey, John Carroll, Peg Riley, Tom Arnold, Bill Brutsch is the Director of Water for the MWRA. And the Chairman of our Board is also the Secretary of Environmental Affairs for Governor Dukakis. Due to a scheduling conflict, he is not here now. We expect him sometime. But in his stead, I would like to ask Steve Davis, who is the principal civil engineer for the Executive Office, to give the Secretary's reading to us.

MR. DAVIS: Good evening, ladies and gentlemen. I am Steve Davis. I am the Principal Civil Engineer with the Mass. Environmental Policy Act Unit of the Executive Office of the Environmental Affairs.

Secretary Hoyte asked me to stand in for him this evening, and to begin that, by reading a letter which he feels is very important from Governor Dukakis, to Michael Gritzuk of the Mass. Water Resources Authority. That letter of May 22nd, this year, says:

"Dear Mr. Gritzuk:

"While I recognize that the Massachusetts Water Resources Authority has an obligation and

responsibility to explore alternative water resources for future projected needs, I want to take this opportunity to restate, for the record, my position on proposals recommending diversion of certain rivers outside of the Metropolitan Area, including the Connecticut and the Merrimack River.

"As you are aware, the Interbasin Transfer Act, the Water Resources Authority Act and the Water Management Act seek to conserve and protect our natural resources, the environment and the interests of water users throughout the State.

"Together, these three pieces of legislation, which I supported and signed into law, embody clearly defined management and enforcement procedures, so that our environment remains both preserved and livable. They reflect a clear and unequivocal legislative intent to make further diversion of rivers a last resort, to be considered only after every feasible conservation measure has been taken.

"That is surely not the case in the Metropolitan water system. Accordingly, I cannot and will not support any proposal to divert any river into the MWRA system.

"I urge the Authority to focus instead on measures to conserve existing resources and manage water demand more efficiently in the future.

"Sincerely,

"Michael S. Dukakis, Governor."

With that as background, it should be clear that Secretary Hoyte must in this matter wear three hats.

He is, first, the Secretary of Environmental Affairs, and as such, the chief environmental spokesman for Governor Dukakis.

By statute, he is responsible for the implementation of MEPA, the Massachusetts Environmental Policy Act.

And also, by statute, he is Chairman of the Board of the MWRA.

In early 1984, when the Governor asked Secretary Hoyte to take the lead in developing the legislation to establish the Water Resources Authority, he made it clear, due to the importance for most Massachusetts citizens of the MWRA's actions, that it was essential that a member of his cabinet be present on the Board, and that it was appropriate that it be the Secretary of Environmental Affairs.

Being responsible for MEPA, he would have to review actions of the Authority. It is of paramount importance, this reasoning went, that he fulfill his MEPA duties

without any conflict of interest created by other responsibilities.

Secretary Hoyte agrees that it is essential to his MEPA role that he remain an effective and impartial judge of environmental review documents. He must be able to appraise public comments, to challenge assumptions and to criticize reports without having his actions affected by countervailing pressures.

Nonetheless, it would be a mistake to say that because of the importance of these responsibilities, the Secretary should cut himself off from policy-making responsibilities, such as that of the Authority's. He, therefore, advised the Governor that he could fulfill both roles, and the legislature agreed in establishing the Authority and in making the Secretary of Environmental Affairs its chairman.

Clearly, these dual roles have put a special burden on him. He has exercised his MEPA responsibilities with undue diligence, whenever Authority actions are in question.

As Authority chairman, he has exercised special caution in policy-making on any issue that is before MEPA for review.

It has been demonstrated in the MEPA review and Authority decision on the citing of the Boston Harbor waste

water treatment plant that he can administer a vigorous and exacting MEPA review, even as he, as well as the rest of the MWRA Board, is considering difficult policy choices.

Incidentally, he feels that the forcefulness and power of each Authority Board member helps him in this task. It is clear that there are eleven votes on the Authority Board, only one of which is Secretary Hoyte's.

So much for two of the hats. What about the third?

As I indicated earlier, Governor Dukakis has stated explicitly his opposition to any major river diversion as a means of meeting long-range water supply needs in this MWRA service area. As his representative, Secretary Hoyte honors and supports his policy judgment.

I would point out, as the Governor has stated repeatedly, however, that in some ways his position is a restatement of the law of the Commonwealth, as expressed repeatedly by legislative resolution and, then, embodied in the Interbasin Transfer Act, that diversion is an alternative of last resort and can never be authorized until all lesser steps, including leak repair and conservation, have been fully implemented and found not sufficient.

Governor Dukakis' position is one of extreme scepticism towards any diversion scheme. Thus, with full

recognition of the Authority's mandate to provide adequate water to meet projected needs, the Governor has formally stated to the Authority, his view that it should not make any decision in favor of a diversion, unless all lesser options have been considered and leak-repair programs and every feasible conservation measure has been fully implemented.

The MEPA position, finally, is that all of these analyses must be carefully structured, fully thought out and painstakingly scrutinized. And that all public comments must be fairly responded to before any decisions are made.

In this MEPA task, Secretary Hoyte is assisted by the Water Supply Citizens Advisory Committee, WSCAC. This group has been in existence since 1977, when it was created by joint agreement of the Secretary of Environmental Affairs, the Metropolitan District Commission and the Connecticut River Steering Committee.

In 1979, when the MDC entered the MEPA review process, WSCAC was adopted as an official Citizens Advisory Committee. Among its other duties is to assist the Secretary in fulfilling his review responsibilities under MEPA.

Over the nine years of its existence, the members of WSCAC have labored diligently and built up a great

body of experience and understanding of the issues. WSCAC will be on the agenda tonight, commenting on the summary report, and will continue to be assisting us in future reviews of MWRA water supply activities.

We are grateful to them all for their dedication and their hard work.

I should note that under MEPA procedures, tonight's hearing is not the end of the matter. Following its review of your input, the Authority will tentatively determine whether to seek augmentation of the water supply, to defer action but track demand growth, or to take some other position or action.

If the Authority resolves upon pursuit of an augmentation alternative, a draft EIR must then be prepared. Tonight's summary report and the reports it is based on will constitute a database for that effort. But it is clear that the preparation of the draft EIR would have to include further detailed analysis of the preferred alternative and feasible options.

As part of that ongoing process, Executive Director Gritzuk and I come before you this evening to invite your comments, oral or in writing, on the summary report or on any aspect of the long-range water supply study. And in Secretary Hoyte's stead, I thank you very much for coming

out.

(Applause.)

MR. RALPH: We will begin taking your comment on the summary report. For the sake of protocol, we have elected officials in the audience who would like to get up first. But I would like to begin the public comment period with the representative from your Citizens Advisory component, WSCAC.

If everybody testifying could state their name and, then, spell their last name, for the sake of our stenographer, please.

MS. SIMONSON: Eileen Simonson, S-i-m-o-n-s-o-n.

I am one of the directors of the Water Supply Citizens Advisory Committee. The committee is actually thirty-five volunteer members, for which the staff works.

Our chairman, Ann Gannett is here tonight, as is the Merrimack representative, Bruce Scullion, to our committee.

Since 1978, as was stated, WSCAC has been charged with review of all documents produced in this long-range water supply study. We hope to insure that water needs and sources are closely scrutinized; that environmental and economic consequences of each alternative are clearly defined; and that the whole study be of use to the Authority, the public

and their elected officials.

The study is severely flawed. More precisely, it is not only flawed in the data it has collected, but in the conclusions it has reached on future water need and the impacts of river diversions.

The study states that about one-third of the water believed to be delivered to the towns is unaccounted for. The study finds that about 30 million gallons a day of water is missing, somewhere between the Sudbury District and the eastern receiving communities, before it gets to the towns.

The study underrepresents savings that industry might achieve through their ongoing conservation programs.

The study underestimates the potential of recoverable leakage in each of the user towns. The raw data, before it is interpreted by the consultants for the baseline year 1980, the base year of the study, finds that about 60 million gallons a day is actually recoverable leakage.

But the greatest flaw of the study is the determination of future needs. A flaw that infects the rest of the study, for it is the measure against which all the alternatives are compared.

In part, because of what the Water Supply Committee found and learned from this study, members of the

committee worked diligently in assisting the drafting of the Massachusetts Water Resources Authority legislation. That effort was also spurred by the belief that an independent authority which could direct and fund its own decisions and actions for water and sewer management was thereby able to improve management of its planning and its management of all its water needs.

The legislation mandates that the MWRA manage water resources in an efficient environmentally sound and economically fair manner.

The bill has, in effect, been called a menu for actions which the Authority is authorized to take. The Authority is directed to price water for conservation, to continue service to partially supplied communities, only after a stringent set of conditions are met. No new community may be added to the system, unless expressly approved by the present users, the legislature and the Governor.

The bill further states that no diversion of water or increase of interbasin transfers shall be taken without a vote of the legislature.

WSCAC submits that the major purpose of the study has already been accomplished: The identification of steps which should be taken to insure adequacy of water supplies; and that the legislation needed to take those

steps is already in place.

The MWRA bill permits and the study supports full system modernization: metering of water in the delivery system; redundancy of meters to assure accuracy; metering of all services, even if some public services are not billed; repairing of town water supply systems and local water supply protection; and the development of a funding mechanism to get these things done.

If these programs are undertaken, with leak repair, watershed management by the MDC, and a realistic study of user sources is completed, no river diversions will be needed.

We believe a planning and projecting data management system should be developed by the Authority, so the day-to-day, as well as, longer term management and planning can be accomplished.

Long-term planning must include cost, benefit and risk analysis, with a clear statement of the decision-making criteria. And to fail to take this step is to leave the Authority without the tools it needs to wisely and efficiently operate.

All of these statements are pertinent to the proposed Merrimack and Sudbury diversions. The Merrimack Valley's future need for its river flows is inadequately

assessed. Downstream impacts on the estuary and its fisheries, river hydroproduction were not analyzed. Impacts on the dilution of pollutants and the impact of reduced flow on drinking water supplies were not assessed.

The Merrimack, however, can provide all of the projected shortfall that the study looked at. It also would provide redundancy to the system, since it would not go through Quabbin Reservoir and, therefore, would be a separate supply.

For this reason, the study finds that the Merrimack is a very serious alternative for future water needs.

The Sudbury River diversion, through a treatment plant and the Upper Sudbury watershed is also being considered. The system was once used for Metropolitan Area water supply, but was discontinued because of a failure in quality.

The study fails to properly address the reduction of flow in the Sudbury River, while the diversion is taking place. It fails to map or correctly explain the impacts of reduced flow in the Great Meadows National Wildlife Refuge or the impact on local water wells and wells under development in the marshes, which are the rivers' flood plain. It fails to carefully review the impact on

users, if the contamination which seeps in the watershed from the infamous Nianza chemical dump finds its way into the water supply.

But the development of this alternative may take less time than other alternatives. And for this reason, the study finds it a serious option.

To conclude, the members of WSCAC have some very straightforward conclusions from our eight years in this study. Manage the system for efficiency and maintenance of the present quality of supply. Pursue alternatives like leak repair, watershed management and user sources. Set up a management and planning mechanism needed to carry these forward. And respect State policy and law, which require that river diversions be last resort measures.

Thank you.

(Applause.)

MR. RALPH: Mayor Kennedy, I believe, has an appointment that he has to get to. So, Mr. Mayor -- I would like, also, if we could request to the point of demanding that we keep testimony within a three to five-minute period. We have about forty-odd people that want to speak here. And we would like to get everybody in.

MR. KENNEDY: I will be very, very brief.

My name is Robert Kennedy, K-e-n-n-e-d-y. I

am the Mayor of the City of Lowell. And I am here to tell you that the City of Lowell is unalterably opposed to any diversion of water from the Merrimack River.

The Merrimack River represents the lifeblood to the City of Lowell. Clearly, whether it is our economy or whether it is the drinking water for the people along the Merrimack River, we depend upon it.

I can tell you that the City of Lowell supplies the Town of Dracut, the Town of Tyngsborough, the Town of Chelmsford, the Town of Tewksbury, with drinking water. And as does, I'm sure, the rest of the places along the river, it is expanding all the time.

Who is to know in the year 2020, whether or not the valley will have enough water for its own purposes. And as far as I am concerned, it is absolutely absurd to think that we should suffer, after all of the years that the valley has had in terrible economic conditions, now that we are on the upswing and the economy is terrific in the valley, now we are ready to zap the very lifeblood from the economy.

This would choke off any future development that would ever think of having.

So, I am strongly opposed to that. The City of Lowell has got a $25 million national park. And that park has got some magnificent recreational opportunities on the

river and through the canal system in Lowell. And here we have the Director of Wildlife and Fisheries, who was in Lowell last week, telling us that for the first time we've got salmon coming up to Lowell now. And in the same breath, we are talking about diverting how much -- 235 millions gallons a day from the river. It is absolutely absurd.

And I can guarantee you this. Not only the legislature, but all the political people from the local level to the federal level, will fight this issue to whatever level it takes, right through the courts. And it won't happen, as long as we are in public office.

Thank you.

(Applause.)

MR. RALPH: Is Mr. Costello still here?

MR. COSTELLO: Thank you.

My testimony is a little longer than two or three minutes. Actually, it is about ten minutes. But I intend to give it, because I was told that you came here to listen to us. So far, we have been listening to you. So, I wish you would just bear with us a little bit, because it took a lot of time to condense this into that short period of time.

For the record, my name is Nicholas J. Costello, and I am the State Senator for the Third Essex District, which

is made up of nine cities and towns which border the Merrimack River.

I have carefully reviewed the Authority's water supply study. And as a member of the Legislature's Committee on Natural Resources, I have considered diversion and water supply issues for many years.

In presenting the nine alternative actions to help meet the projected Boston Area increase in water demand to the year 2020.

This study presents water yield, capital and operating costs and the utility costs and unit costs per million gallons of water supplied for each alternative. There are certainly many facts, insights and projections here.

Unfortunately, for the policymakers, administration and taxpayers of Massachusetts, the study has a fundamental flaw which negates its importance and its usefulness. And that is, it asks and answers the wrong questions.

The report's main focus is: How can Greater Boston augment its water supply to meet the projected increased demand to the year 2020?

Rather, the question, I believe, should have been posed several years and millions of dollars ago, which is: What can the Boston Area do with its own existing water supply, to meet its own demands?

These are two questions that clearly lead a questioner down different roads and, unfortunately, I now think, that the Commonwealth finds itself without the proper information to the make the dynamic long-range water supply decisions.

I come to this conclusion, because I believe that river diversion is a failure of the Water Resources management. It should be viewed as the Interbasin Transfer Act, the Waste Water Management Act and the Enabling Legislation for the Water Resource Authority itself demands -- as a course of absolute last resort.

Waste should be eliminated before augmentation is considered. Current supplies should be properly utilized before other restrictions are appropriated. And these two principles embody a course of action different from those drawing comments here tonight. They are alternatives which take conservation and good management seriously into account.

So, let me comment on the study's bottom line, with my point out in front. I believe the Authority can meet its own demands, if it acts responsibly, carefully and most importantly, if it firmly sets a solid course toward that goal.

For example, let's look at leaking in the community water system. The Authority should be able to save

10 to 15 percent of current use through leak repair. It is widely acknowledged that serious leaking occurs, and the example of cities like Boston and Salem, tell us that tremendous savings are possible. This 10 to 15 percent would save 60 million gallons of water per day. Fully, half of the projected increased water demand for 2020.

No. 2, there should be less pessimism about the potential of recovering nonaccounted for water within the system itself. Presently, about 5 million gallons per day fall within this category. And the study estimates that an additional 16 million gallons per day will disappear.

We should be aiming to cut that 5 million gallons per day of unaccounted for water figure, if we can. But, at least, we should keep it from increasing.

Such a decision and direction would substract another 16 million gallons per day demand, leaving only 44 million gallons per day of deficit.

And that remaining 44 million gallons can be eliminated if the Authority would reassess policy and more carefully manage, No. 1, potential new users of the Greater Boston water system supply and, No. 2, increased use of that system by user and nonuser communities of contaminated water sources.

Beyond this, there is industrial conservation

to promote community sources to develop and substantiate unaccounted for water amounts that cannot be explained.

Boston's demand can be met and future growth can be accommodated. You, the Water Resources Authority decision-makers, can develop a program to reveal the full potential of this type of approach, an approach that recognizes and respects limits, and that finds satisfaction in conservation.

Now, as a member of the Massachusetts legislature, I would like to make two points. First, that such a sound conservation approach is not just good management. It is also the foundation of the Commonwealth's current water policy.

And second, that the Merrimack Valley opposes diversion without good cause and will fight its enactment.

On a policy and legislative level, Massachusetts has recognized that water does not recognize political divisions or subdivisions and that surface and ground water must be managed as a single, interconnected system on a watershed basis. And we have established that diversion should only be considered if no other viable alternative exists.

In addition, we in the Merrimack Valley know of our own reliance on the Merrimack River. Our economic future is intimately tied to the river and its health. A

diversion could significantly impact water quality, harm fisheries and wildlife, and upset the balance of fresh and salt water in the great Merrimack/Plum Island estuary.

A reduction in flow would diminish hydroelectric generation in Lawrence and Lowell, valuable agricultural land would be consumed for new treatment facilities, and a sludge disposal plant would have to be built. As an additional burden, the proposed Merrimack River alternative diversion carries a half-billion-dollar pricetag for construction and an annual operating budget of $15 million.

Most importantly, the consideration of a diversion proposal for the Merrimack River or any other river in the Commonwealth is unnecessary and unwise, from a local view, from a State view, and from a Boston Area view itself.

I would ask you to change your agency's course. Ask the right questions and demonstrate the great potential of domestic, institutional and industrial conservation.

Institute comprehensive water metering programs, stop leakage, begin aggressive watershed management, and protect and utilize member community sources. Use the talents of future technology. Much can happen within the next forty years.

I thank you for coming to our community for our comments. As someone who has worked with others, to craft the

statute which establishes our agenda, I know that your task is demanding, broad in scope, and vital to the future of the Commonwealth. Your leadership is needed for sound stewardship.

Please feel free to call on me or my office, if we can be of any assistance to you.

Let me leave you with a thought that David Bowie -- That I carry with me, as I approach my legislative work and on issues of environment to those of public health -- And it is that conservation is the recognition that it is better to rebuild what we have built badly, than to destroy what we have not created.

Thank you for coming and thank you for listening to us.

(Applause.)

MR. EMILIO: Thank you very much.

For the record, I am Representative Frank Emilio, Third Essex District in Haverhill.

I will be brief. I won't take as much time as Senator Costello. And certainly, I am in agreement with much of what he said.

You know, looking at this environmental impact report, oftentimes, when you look at a report such as this, if you read between the lines, you can uncover some of the

issues that you are really looking for.

For instance, on the first page of this report, it states that State law and policy Interbasin Act, Chapter No. 21, and Massachusetts Water Supply Policy Statement of August, 1984, requirement that the conservation program be undertaken prior to seeking sources of water from another watershed.

You know, I think that spells out the issue right here. What I am up here for this evening is to talk about diversion of the Merrimack River. The Governor has sent a letter and, after looking at the letter, I wish it was something that I had written. Because I couldn't agree with him more. He feels that diversion should be a last resort.

And certainly, the Merrimack River should be a last resort for any diversion. And I think it is spelled out very concisely and very clearly on the environmental impact report, which states -- And I read this because if people haven't read it, I would like them to know about it -- And this is for the diversion of the Merrimack River.

The operation of this alternative is complex; it requires a high level of treatment and a complete transfer of most of the system to this source, during the eight months of operation.

The source is of poor quality. And, therefore, requires a high level of treatment. This alternative is the highest unit cost.

You know, I think, when we talk about water supply, we look for a good quality. We look for a cost that the users will be able to afford. And in the Merrimack River, it certainly does not have those two requirements. It would be very costly and it is a poor quality of water.

Therefore, I think you have probably guessed, at this point, that I would be against any diversion of the Merrimack Valley. And I couldn't express that more emphatically than to say it should be out of the question. And as long as I serve in the legislature in the Commonwealth of Massachusetts, I will oppose any diversion of the Merrimack Valley.

And let me say this. There was an article that appeared in the paper this evening, where Mayor Ryan seems to think that it is cut and dry. I don't believe that. I believe you're a good and honest strong body and you are going to make the right decision.

And he indicated that because of the lack of clout in the Merrimack Valley legislators, that perhaps the Boston delegation will dictate where the water is going to come from.

Let me say to you that we have a very strong delegation in the Merrimack Valley. A delegation who is going to do all they can to prevent diversion of the Merrimack River from ever happening.

And like I say, I can't express that more emphatically. As long as I am around, I will fight that fight.

Thank you for your time.

MR. RALPH: Thank you, Representative.

(Applause.)

MR. RALPH: Representative Tucker?

MR. TUCKER: My name is Susan Tucker, and that is T-u-c-k-e-r. I represent the Seventeenth Essex District, Andover and Lawrence.

And I want to speak to just a few issues tonight. One regarding the politics, since we, in the legislature, hear very often about the politics of these river diversions. I think something very exciting is happening in the legislature. And I am pleased about it. And that is, that instead of the Merrimack Valley reps. saying to the Connecticut reps: Take it over there.

You know, coming to you and saying: Going to the Connecticut River. Or the Sudbury folks saying going to this river or go to another river. We are all sort of catching on, you know, and giving you the same message. Don't come to

any of us. No rivers. Diversion is wrong. It's a wrong way to go.

I am very excited about that, because I think it will play out politically, very, very differently than when first assumed that it is going to be one river against another. We are all saying: No; no diversion.

And I know that you are hearing that over and over again. And I sit on legislative committees, and I hear the same thing over and over and over again.

I don't feel sorry for you tonight, because we are hoping that once you hear it over again that you will get the message. And that's what this is all about. And that's why we are very glad you are here.

And, of course, that message that we hope you get is that you will hear early and hear often that diversion is the wrong approach. That you won't even think about it. That you will start to act with all due speed on all of the other recommendations that I could repeat here. But I will spare all of you, and all of you, from that long list that everybody knows can be done before diversion is even considered.

And just my last point. I was struck by the irony of dealing with costs. The $500 million which would inevitably, in any construction like this, turn out to be,

I'm sure, over a billion dollars. And you, in your creative wisdom think, just think about the conservation you could buy with a billion dollars. Just think about the kinds of things that have come up over and over tonight, as alternatives to diversion.

I mean, how foolish and what a shame it would be to put that kind of money into diversion, when you think of the leak repair and the sources you could find. It is just massive amounts of money.

So, I hope you will keep that in mind, and I am glad you are here. And don't even think about it.

(Applause.)

MR. RALPH: Representative Joe Hermann, please.

MR. HERMAN: I am Representative Joseph Hermann, H-e-r-m-a-n-n, from North Andover.

And it is odd that I am the last one to speak because of the water situation we have in the Town of North Andover.

We have had some problems here, and the problems here have been very acute. And I am here to see that these problems never occur again. And I am here to see that the Town of North Andover, with the bordering communities of Haverhill, Methuen, Andover and Lawrence, are not affected by any pollution of their water or any diversion of their water.

I find it very odd tonight, to pick up the Lawrence paper, and read in the Lawrence paper, that Mayor Ryan of Haverhill, and I quote -- From what I understand -- I quote what he says -- That we -- They should now realize that basically, just going through the motions, myself, Representative Emilio, Senator Costello, Representative Tucker -- have never gone through the motions, when it comes to our area -- when it comes to the need of our area.

We will fight. We will fight very vigorously for no diversion of the Merrimack River, for any purpose. And Mayor Ryan also stated, too, and I take umbrage in what he said, that tonight's hearing is an act of going through the motions, as far as Boston officials are concerned. I assure you, we are not going through the motions. And I assure you that Mayor Ryan is not the spokesman for the Merrimack Valley delegation, by any stretch of the imagination. We are as cohesive in the Merrimack Valley as he claims the Boston delegation is. We have a coalition -- a vibrant coalition of Merrimack Valley legislators. They go to Lowell, to Dracut, to Wilmington, to Haverhill, to Merrimack -- all through the Merrimack Valley. And if he thinks or anybody else thinks that the Boston delegation is going to dictate to the Lawrence delegation for diversion of the Merrimack River, they are sadly mistaken. They will

not; they cannot. And I assure you, it will never happen. And I assure you that I will want to hear a response from the Commissioner -- the Secretary of Environmental Affairs, who stated when he was in Northampton the other night, it was almost inconceivable, the diversion plan for the Connecticut River would be adopted, because of opposition by State legislators, Dukakis, and Connecticut officials.

We can just change those words around. And instead of putting in Connecticut officials, we are going to put in the Greater Merrimack Valley legislative delegation, including democrats and republicans.

And as it was stated by Representative Emilio and Representative Tucker and Senator Costello, and the Mayor of the City of Lowell, Mr. Kennedy, we will fight -- we will fight through the courts, we will do everything in our power to see that this water is not diverted. And I will end up by going back to what Eileen said. We do have a responsibility to stop leakage, to stop any diversion that may come from any waters to the City of Boston, by any act, physical or otherwise, before any action is taken on this. And I do take some consideration in the simple fact that the Governor has stated explicitly -- And this is the documentation of Secretary Hoyte -- his opposition to any major river diversion as a means of meeting the long-range water supply needs of the Mass. Water

Resources Authority. But he also stated -- Not the Governor but Mr. Hoyte -- I would point out, as he has stated repeatedly that, however, in some ways, his position is a restatement of the law of the Commonwealth, as expressed repeatedly by legislative resolution, and then embodied in the Interbasin Transfer Act, that diversion is an alternative of the last resort, and it cannot be authorized, unless all lesser steps -- And Eileen has stated this -- including leak repair and conservation have been fully implemented.

So, I charge this commission to make sure that leak repairs and the likes are instituted before any thoughts are given to diversion of the Merrimack River. And again, I reiterate, and I cannot reiterate as strongly as I feel -- And I feel very strongly about it -- We will fight and we will fight with every breath that we have, to see that the Merrimack River is not diverted -- not diverted. Because we have municipalities on the Merrimack River that also need water, as well as the City of Boston.

And going back to the year 2020, as this document states, we also hopefully will be here in the year 2020, and need the water from our river. So, I urge you, with all respect, to listen to us, to listen to the area representatives as you have, the people in the Connecticut Valley, and we are no lesser. And we will do, again,

everything in our power to see that this water is not diverted.

Thank you, very much.

MR. RALPH: For the record, Representative, I did not see Mayor Ryan's comments. But we are not here for the motions, either. We are here to listen and learn, I assure you.

MR. HERMANN: But I assure you that I did. And I assure you that we are here, and he has stated something that we are very exception to.

MR. RALPH: We are not going through the motions as a Board here.

MR. HERMANN: Well, I'm glad.

MR. RALPH: Thank you.

Is Representative Blanchette here or a representative of the Representative?

MS. UPSHUR: Good evening. My name is Helen Upshur. I am on staff with Representative Blanchette. Due to another legislative engagement, he regrets that he could not be here in person to express his feelings to the Board, and the public. But he wishes to express his thoughts, as did the other members of the delegation, that he is categorically opposed to any diversion of the Merrimack River water and will fight with the other members of the Merrimack

Valley delegation to see that this diversion does not happen. And he simply did ask me to add that he will be in the hearing next week, I believe at Gardner Auditorium, to present his comments, because he does feel so strongly about the issue.

MR. RALPH: Is the Mayor of Newburyport here or a representative of the Mayor?

MR. NEIDHARDT: My name is Fred Neidhardt, and I am the Chief Planning Official of the City of Newburyport. I am here tonight on behalf of Mayor Peter Matthews, who gave me a simple message to bring here tonight. No, to diversion of the Merrimack River.

And the reason is very simple. The insensitivity that the environmental assessment shows to the communities and towns along the Merrimack River, economically and environmentally, is just not there, ladies and gentlemen. This is a very, very important resource to the City of Newburyport and to our brother and sister communities.

Please look at it, before you decide to take our precious resource. Manage your resource better and, then, look at other alternatives.

Thank you.

MR. RALPH: Is there a representative from Water and Sewer?

MS. WALL: My name is Mary Wall, W-a-l-l, and

I am here to present a statement on behalf of the Engineering Department of the Boston Water and Sewer Commission.

Members of the Board and ladies and gentlemen, the Boston Water and Sewer Commission purchases one-third of the total water supplied to communities by the Massachusetts Water Resources Authority and, therefore, has a strong concern representing the people it serves in the MWRA's ongoing, long-range water supply planning study.

The Commission thanks the MWRA and its predecessor, the Metropolitan District Commission, for the work produced to date in the water supply study.

There are several areas in the summary report on which we wish to comment:

1. The Boston Metropolitan Area needs to be assured of an adequate water supply for the future. The development of supplemental sources has been delayed too long. MWRA currently provides water for approximately 2.4 million people or 41 percent of the population of Massachusetts. Of the nine alternatives discussed in the summary report, the no action alternative, which results in water shortages in a state with adequate water resources, is clearly unacceptable.

2. The Commission has had experience with some of the programs defined under the demand management

alternative. We are concerned with the projections of water to be saved under the domestic device retrofit program and its associated costs. There has not been, to date, a large-scale effort to conduct such a project in this region. While we concur that this is a worthy experiment, we believe that caution about the results is advisible, at this time.

3. Current water purchases by the Commission are 32 million gallons per day lower than the 151 million gallons per day purchased in 1976, due to our aggressive leak detection and repair program, meter replacement and meter testing program and capital improvement program. The Commission believes that all these actions are part of good municipal water system management.

4. Since 1979, our leak detection efforts have resulted in the detection and repair of approximately 2400 hidden leaks. Under our meter replacement program, over 39,000 residential meters have been replaced, with approximately 6,000 additional replaced annually. Boston Water and Sewer Commission has instituted a program to annually test the 200 largest water meters, to insure accuracy. The Commission is also well underway with our capital improvement program goal of relaying and relining eleven miles of pipe per year, insuring that by the year 2000 no pipes in the system will be older than 100 years old, that have not

been rehabilitated.

5. As an additional stimulus to promote demand management and conservation among its customers and in light of MWRA's various legislation mandates, the Commission implemented a progressive rate structure of ten increasing blocks in August of 1985. This structure means that the more water a customer uses, the higher rate the customer pays. There has not been enough experience under this rate structure to comment on its overall effect of water demand, at this point.

Finally, as part of an ongoing water system facilities plan, we are undertaking important efforts to enable us to fully understand and manage our system. These efforts include an in-depth analysis of our unaccounted for water, including better definition of its components and an in-depth analysis of the various uses of water in the city and among our customers.

These comments are presented to you this evening to demonstrate the Commission's ongoing and future commitment to manage our water resources and that while each community should take steps to similarly manage its water resources, it still remains that an adequate supply of water for the future is essential.

In conclusion, it is our expectation that a

detailed report, identifying the combination of alternatives that meet the areas needs for the year 2020 will be forthcoming. We look forward to the opportunity to comment on the draft EIR and the preferred alternatives selected by the MWRA Board.

Thank you.

(Applause.)

MR. RALPH: Anybody who is in the audience that wishes to testify, maybe the easiest way would be just if you would line up by the podium here, just for the sake of expediency.

Senator Wall, do you want to speak?

MR. WALL: Moderator Mike Ralph, my name is William X. Wall, I am a former State Senator. I had represented Lawrence, Billerica, Tewksbury, Andover and Lawrence. I am presently a City Councillor in the City of Lawrence. I am here representing his Honor, the Mayor, Kevin Sullivan, and the entire Lawrence City Council, who with me are unalterably opposed to any diversion of the Merrimack River.

Every state is free to change its laws governing the riparian ownership and to permit appropriation of flowing water for such purposes deemed wise.

I want to apologize that I didn't recognize the Board members of the Massachusetts Water Resources

My feeling, and I believe the feeling of many people in my community is a feeling that what we have to do, what I urge the Commission to do is to enter into a comprehensive leak repair and detection program, to be firm about water management policy that protects our local water supplies, reduce demands, and hopefully reduce the need to seek new communities to enter into this watershed management area, the Sudbury Reservoir, ultimately giving us an extra 20 million gallons a day as proposed.

My feeling and the feeling of many others is that this same type of benefit can be realized by an aggressive policy which I just outlined. I hope that the Committee will work, the Special Commission on Water Supply established here in the legislature to that end. Thank you very much.

(Applause).

MR. RALPH: Any other members of the legislature here.

MR. SHEEHAN: Thank you for letting

the grassroots feelings. Although we have been, for several years studying this report and have tried to analyze it technically, as well as what its overall impact to the valley has been.

At the time the preliminary report from the MDC consultants was received by the Watershed Council it was very hard to accept then, at face value, that there would be little or no impact on the donor river's water quality or hydrology. For example, that the 10-percent average flow reduction is not a very significant figure, and we think there are many factors to be considered, which the full report by Wallace, Floyd fails to take into account.

After eighteen months of study by our River Management Task Force, we are asking you to accept that this report is quite seriously deficient and misguided in some of its conclusions.

The Board of Directors of the Watershed Council, eighteen leaders in a variety of fields, including the environment, coming from the Valley in Massachusetts and New Hampshire equally, has a special responsibility to look at the needs and uses of the River through the planning period that the MDC is considering.

We have tried to do this from an informed base of knowledge and have conducted a demand and water supply

study of our own, a factor which was not conducted by the MDC's own admission. We started with a demand yield study on the mainstem and made some informed guesses as to the usage during the planning period in growth-impact in Southern New Hampshire.

Members of the Authority may wish to share our perspective, if they think of a pool of recently revitalized water behind the Pawtucket Dam in the City of Lowell, over two-million acre feet of slowly flowing potable reservoir for half a million people during the study period, extending eighteen miles up to the shallows or rapids at Merrimack, New Hampshire. The proposed take-out point is midway along this pool. And those of you who are thirsty tonight, we ask you and invite you to drink from our fountains, which come directly from the River, and remember that we give this to you willingly, along with 100 million gallons that also flow into the Greater Boston Area from the Wachusett Reservoir. So, it is not as though we are being niggardly about the water in our watershed.

While the flow in the Merrimack varies from a trickle to a flood, from a few hundred cubic feet per second to over 17,000 cubic feet per second, man usages are a constantly growing factor in this valley. Several hundred million gallons a day of treated sewage is or will

be discharged to the Merrimack daily during the planning period of 1990 to 2020. Often polluted water and urban runoff, which must be assimilated by the flow downstream, to be tapped for use in our own industrial plants and growing population.

I would like to turn, for a minute, to the consultant's assumptions on which the impacts or lack of them was based.

Our problem is that they are only assumptions. We look at the probable scenarios, should the 26-mile underground aqueduct be built, forever connecting the water resource fortunes of the Merrimack Valley with Boston and its thirty-two communities?

Can anyone doubt, if drought or other water supply crises should arise, as it inevitably will, that political considerations, based on need, will determine how much water is pumped to the pipe and over what period?

Since the cost of this water, under the Merrimack River option, is very high, four times higher, if I read the table correctly, there will be impacts on retail water rates on Boston users which will be very great. And there will be irresistible economic pressures to use this great intrastructure more than the 135 to 180 days arbitrarily selected by the consultant as a skimming period.

The impact most easily and accurately measured is the reduction and capability by hydroelectric facilities downstream from the take-out point. But the hardest, perhaps, is the subtle effect of flood flow reductions on the ecology of the huge and vitally important estuarine resource at the mouth of the river. Our Director Biologist, Dr. Allan Pollock, has some comments on that aspect of your report.

Fisheries experts. I think that the effect of this withdrawal on spawning and returning salmon and shad has not been adequately assessed. And we feel that more work on the negative effect of flow reduction on water quality is most in need of attention.

DEQE has responded to our request by beginning to take measurements in the river during low-flow periods.

I will not comment on the assumptions on your need in the future, as I think WSCAC, who we cooperate with, has done an excellent job in this regard. Mostly, we want to convey to members of the Authority that we do not yet have a completely clear picture of the growing use of the Merrimack River by millions of inhabitants in this valley. We know that the population using the River has doubled in the fifteen years, and water usage will increase another 65 percent during the planning period.

There is little doubt that we are entering an

age of water scarcity in this valley and that you are considering an option which could make that scarcity more scarce for all of our residents. No comprehensive plan for this fabulous resource has yet been done and it needs doing and should be done, before you make your final decision.

We appreciate how seriously you take your responsibilities and we appreciate your coming out here to hear our remarks.

Thank you.

(Applause.)

MR. HORNE: I'm Mr. Horne, from Lawrence.

I have stood here through this whole meeting before the Board members, before everybody.

As I recall myself, I am a peon. I have nothing to do with government and I have nothing to do with politics. I don't know one end of it from the other. But I do know that if everybody in this room would stand up and make a statement as I am, maybe we would get somewhere.

What is the matter with you people? Are you all scared of these people? Are you actually scared of them? Our politicians are trying to do something with them, but yet you people won't do a thing. You sit there with a big grin on your face.

Good night. Thank you.

MR. MERRIAM: I am George Merriam from Sterling, Massachusetts, on Wachusett Reservoir. And I am here as a private citizen and a member of the Sierra Club.

I am very encouraged by what I hear here tonight. We have got a devoted committee here working hard, listening -- telling us that the last alternative is going to be diversion of any of the rivers. I believe them. I hope that they are going to live up to that promise.

I hear a good many people speaking about what all of us recognize to be a major problem that we have known about for many years. The leaky system that the MDC has had. I will not bother you with horror stories, which I could, as to leaks that were plugged by simply dumping crushed rock into holes. But I can tell you this, that I am encouraged because I hear legislators saying that they are united for all the rivers, not just a few. I hear a committee and a commission saying they really mean business. I hear, also, that this is not any kind of setup. I appreciate the previous gentleman, who said we should speak up as private citizens. I am sure a good many people are thinking that. And I encourage you to speak up, also.

Thank you, very much.

(Applause.)

MS. CHAMPENY: I am Leona Champeny, Board of

Water Commissioners, Town of Lincoln, Massachusetts.

I have a brief statement from the Board of Water Commissioners, to fellow commissioners on a much larger Board.

We find that the proposed diversions are unjustified, because roughly one-third of the water supplied is unaccounted for, which relates to Page 21, Table 2. The water demand projections.

Furthermore, with regard to the Sudbury River diversion, we do not consider this study adequately studies the impacts of diversion on existing municipal water supplies downstream, and ignore agricultural and irrigation requirements as well.

Finally, poor water quality, small yield and high cost argue against the use of the upper reaches of the Sudbury River for metropolitan water supply.

Sincerely, Board of Water Commissioners, Town of Lincoln.

As an aside, may I say that, I think, on the basis of what I am hearing here and the little time that I have had to absorb the information in the reports regarding other watersheds, that final comment may well apply across-the-board for all diversions.

I thank you.

MR. MacKILLOP: My name is Duncan MacKellop, M-a-c-K-i-l-l-o-p. I am the Assistant General Manager of the Essex Company, and I am here on behalf of my employers.

The Essex Company, as well as three other companies, Lawrence Hydroelectric Associates, North Canal Waterworks and Massachusetts Hydro Associates.

Essex Company owns and operates the Great Stone Dam and canal system in Lawrence. Lawrence Hydroelectric Associates and North Canal Waterworks and Mass. Hydro Associates, own and operate approximately 18,000 KWs of hydroelectric generating facilities on the Merrimack River in Lawrence and Lowell.

Since the mid-1800's, the Essex Company has held water right authority to the Merrimack River by a grant from the Massachusetts legislature. Lawrence, North Canal and Mass. Hydro operate hydroelectric facilities under license granted by the Federal Energy Regulatory Commission, a Federal agency which has jurisdictional authority over development of hydroelectric facilities in the reach of the Merrimack River, impounded by the Great Stone Dam.

In addition, Lawrence, North Canal and Mass. Hydro facilities were subject to extensive State agency review, prior to commencement of construction, and hold various State licenses and permit authority relating to their

operations.

In reliance upon the Federal and State rights granted Lawrence, Essex, North Canal and Mass. Hydro, more than $30 million has been invested in facilities which rely upon historical flow of the Merrimack River.

To the extent that flow is diminished, all the companies I represent will be adversely affected.

We, therefore, wish to go on record as opposing any diversion of the Merrimack River, due to the resultant loss of electrical generation and water sales revenues that will be experienced by our companies.

We believe the State and Federal rights and licenses now held by our companies create prior rights that must be recognized, should the Merrimack River be diverted. Should such a diversion be authorized, we would expect adequate compensation for losses incurred as a result of such diversion.

Unless appropriate compensation is provided as a part of any plan for the diversion of the river, we will aggressively protect the interest we currently hold.

One other matter concerns us regarding this proceeding, the lack of adequate direct notice to the parties with a direct interest. At no time, during the legislative process which created the Water Resources Agency, nor

during the planning of these hearings, were any of our companies provided with legal notice of the proceedings.

Fortunately, we learned of this through newspaper articles and membership in one of the Merrimack River Valley Associations.

We believe a more formal and comprehensive notice procedure should be implemented. I appreciate the opportunity to make these comments.

Thank you.

MR. RALPH: Duncan, I just want to see you on the side.

MS. ANGELIS: Good evening, members of the Authority and the audience.

My name is Janet Angelis, A-n-g-e-l-i-s, and I chair the Groveland Board of Water Commissioners.

My remarks this evening are limited to a strictly local but very important issue. Groveland is located on the Merrimack River, downstream of the proposed taking, and in that part of the river that fluctuates with the tide.

Since 1979, when both its wells became contaminated, the Town has suffered a serious water shortage. We were fortunate enough to find another water source, a well just 75 feet from the Merrimack River. But the capacity of this well is only 40 percent of our previous supply. Even

with strict conservation measures strictly enforced, this well must sometimes pump round-the-clock, in order to meet demand. Repeated attempts to locate a supplemental supply have failed. This well barely adequate to meet our needs remains our sole source of water.

And its proximity to the river, makes the Merrimack, itself, our source of water. Engineering studies show that more than half, anywhere from 60 to 80 percent of the water pumped from this well, is drawn from the Merrimack River by induced recharge.

Thus, the Town of Groveland has grave concerns about the proposal of the Massachusetts Water Resources Authority to draw water from the Merrimack. We are concerned that lowering the volume of water in the river will affect the quantity of our only supply; that lowering the volume will affect the quality of our only supply; and particularly, that lowering the volume will affect the tidal influx in the river, drawing more salt water further upstream, perhaps as far as our only well. And the sodium content of the water from this well is now barely below the State limit of 20.

At the very least, the MWRA needs to conduct a study to determine what effect drawing water from the Merrimack will have on Groveland's only source of water. And as we maintained in a letter to Patricia Corcoran of the

MDC in December of 1985, that study should be undertaken before any option is selected. It may be that using the Merrimack is not a viable option.

Certainly, the Groveland Water Commissioners sympathize with the MWRA's problem. We understand too well the frustrations of a chronic water shortage. But no community should be allowed to solve its own water crisis by depriving another. And we fear that if the Merrimack is used to supply the Boston Area, our town will lose its only source of water.

Thank you.

(Applause.)

MR. VITTUM: Mr. Moderator, members of the Board, my name is Warren Vittum, V-i-t-t-u-m. I am a designated member of the Board -- Advisory Board of the Water Commission in the Town of Weston. We are 100 percent members of the MWRA by pollution. And I have just a few brief words.

We have an ongoing leak detection program. We have had a meter program in force for the last twenty years, to substantiate some things that have been said tonight.

There is no doubt that we need water conservation. And some of it will come with price increases.

We have got to institute an education program and also leak detection and repairs, both on the MWRA system

and on the member town system, and not fully at the MWRA's expense.

My support is given to the following. The Upper Sudbury supply. It is a shame to let this valuable asset stand idle. And contrary to belief, the Sudbury River won't dry up.

Local water supplies that have been abandoned or lost to pollution should be reclaimed. There are some along the Charles River and there are others in Greater Boston.

Watershed management is a must. The Millers and Tully River is an alternate to the problem. And I feel that that should be looked at.

The Merrimack is a potential, but it is too costly. And unless things are changed, this should not be looked at, at this time.

I do not feel that the Plymouth Aquifer or the Connecticut River should be looked at, at this time.

Thank you.

(Applause.)

MR. SLUSHER: My name is Bill Slusher. I am Chairman of the Groveland Planning Board and a long-time member of the Merrimack Valley Planning Commission. I have a few brief comments, for your attention.

The Merrimack River diversion does have one

unique advantage. What is this? Someone speaking positive about it? What has one unique advantage?

In one shot, ignoring all these other minor, little 10 and 20 and 30 million-gallon-per-day remedies, in one shot, you get all the water that you are going to need to boost up Boston, and surrounding towns. Sounds terrific.

But we should look at the cost. Have you got a half-billion dollars handy on you?

As one senator of a few years back said, and I paraphrase slightly -- a half-billion here, a half-billion there, before you know it, you've spent some money. And whose money are you spending? It is the money of the taxpayers of Massachusetts; it is the money of the water-users of Massachusetts.

I think you have the responsibility to use the more economic, more conservative approach of following the multiple, lower cost per MGD approaches that are available for supplying the additional water needed by the core area in Massachusetts.

These other solutions, through increased supply and/or reduced demand and losses, can make the difference you are seeking.

The high percent of unidentified losses, unaccounted for losses, concerns me. The inadequate monitoring

equipment on your main flow of water is one of the problems. I have been fortunate enough to attend several meetings of Merrimack Valley Planning Commission, where various groups brought forth various sections of information regarding this. And it does appear that some concern should be given to where you lack fundamental basic information or what input amount of water flow you have through a major pipe and what output you have, so as to know whether or not you are losing a number of MGD within one pipe section or within another pipe section.

Written comments will be supplied to you to amplify this, before the end of the month.

Others are speaking on other adverse impacts in the Merrimack Valley. For communities like Groveland, as you heard two speakers before, for Hydro power, another speaker mentioned, for expanded population and expanded industry in Haverhill, in Lowell, in Lawrence, for fishing activities. All of these points have not been adequately considered in the work done to date.

One last point I must make. Past expansions of the Metropolitan District Commission have repeatedly exceeded the needs, the MGD needs of the MDC. Look at the historical record. I am not going to document it now. You can find it in the record. And what happened afterwards, there had to be a campaign to recruit more communities.

Let's bring more communities into the fold. Let's increase the size of the MDC territory.

This is not appropriate. And to date, I have no confidence that this process is being avoided this time around.

Please do not saddle the Merrimack Valley with an unneeded diversion that is not economic for your needs and not economic for our needs.

I thank you.

(Applause.)

MR. POLLOCK: I am Allan Pollock from Merrimack. That's P-o-l-l-o-c-k.

I am concerned about the lack of depth in your summary report and assessment report, in analyzing water quality impacts on the Merrimack River. Nobody knows much about the effect on a particular river's quality of changing the quantity of water which dilutes wastewater effluents.

We know how bad the water quality was twenty years ago, because it was measured. We know how much it has improved after cleanup efforts, because the newly installed wastewater treatment plants measure downstream water quality. But this is the only information available.

Actual water quality data under low-flow conditions is nonexistent. Thus, in the summer of 1985,

after a particularly dry winter and spring, the Merrimack River Watershed Council asked DEQE to make some unscheduled water quality measurements, because of the need for such information.

They were able to fit into their schedule only the easiest measurements to perform and did not do the measurements which would correlate with their last major scheduled sampling in 1981. Wallace, Floyd's subcontractors present no such data.

The present consultant, without any low-flow data in its summary report or supporting documents, makes the broad statement (Page 76) that no measurable short-term or long-term impacts to flood plain or river channel plant or wildlife communities, indicator species or species of special interest, are scheduled to occur as a result of the proposed transfer.

How can such sweeping generalizations be an acceptable result of an expensive environmental impact process. We need to see some actual water quality measurements correlated with different water flow rates and reported in a reasonable, understandable manner. Then, if necessary, some expert extrapolation to include changes to water quality under flow-rates after diversion.

Thank you.

(Applause.)

MR. ROMANOFF: I am Eli Romanoff from the Center for Regional Science Research, College of Management Science, University of Lowell.

I think I have some notes here. I would like to express my concern on two issues in the report.

The first one is the concept of diversion of water from the Merrimack, which is designed to occur during periods of high flow in the river, when the Quabbin and the Wachusett Reservoirs are less than 98 percent full, to provide an average annual yield of 120 million gallons per day.

Now, let me -- And this is the way I read it -- We have a reservoir, buffed up, where there is some water, and then, we have a river flowing, and we take water from it. It is the same way as if we have two neighbors; one has his assets with his stock broker and the other one is a salesman, whose paycheck is dependent on the sales that he is able to generate each month. Then, we have a neighborhood authority telling them, the guy who is the saleman, that he will have to pay $120 from his paycheck every month to the neighbor, in the event his investments in the stock market turn sour a little. That is like measuring apples and oranges, I will submit.

One needs a much more sophisticated analysis

to measure reservoirs, which are accumulations of water and water flows in a river. And briefly, to say that this may mean that since the Authority does not have any contract to the higher Authority to assure efficient and desired water flows every year, in the event there is a drought in the Quabbin or in the other reservoir, we may have the same kind of a drought here.

What we could measure is some sort of inner quality or relationship of water level in the accumulated reservoir and some statistical measure, subject to probabilities in the river. That would mean that during droughts along the river the 10 percent reduction in water flow may be 15 percent or 20 percent, or even more.

Well, some would say such analyses that took eight years to do is unbecoming. Others would say that it is plain wrong. That is the first one.

The second point, I would like to take very strong exception to the economic impacts. Having done some work along these lines some time ago, over the last few years, I think the numbers are misleading and the whole statement is misleading. For construction, there is a quotation of so many person years. First of all, there is a person years. Assume that that project's construction will be about seven years long or six years long, whichever

it is, the number of jobs is way lower, and these jobs won't be in Lowell. Lowell is now experiencing a very low unemployment. Most of these jobs will come from the union halls in Boston or in New Hampshire. That is as far as construction.

So, the impact on Lowell, the Lowell labor market area, is minimal, if any. Now, as far as operation. Like a lucky number -- LB. What is that lightly beneficial or something? I think it is highly adverse, because by taking the water which now, perhaps, is in excess, but in ten years or fifteen years from now, this water is going to be the backbone of the new industries that are likely to spawn in Massachusetts. And I mean Massachusetts. Not only in this area. Because this is the only area in the State, on each side of the Connecticut River, where some development of new industries that are now only, in terms of beginning technologies, are likely to be developed, whose impact in terms of the spillover effect are likely to be beneficial to Boston, and will cause the growth of the Boston Area.

The numbers cited in the report are wrong, because the withdrawal of water is likely to cut the growth options of the area. Consistent with the objectives of the president of the university, we started a study on the growth prospects of the Merrimack River Basin. And although we are just now in the early specs of this little exercise, it will

suggest that prospects are quite staggering, if one takes advantage of the available resources in that area. People, water and other things altogether.

And to do so, it won't be possible, if that which is now perhaps in excess won't be available some time in the future.

So, I would like to conclude that this kind of evaluation does not satisfy the needs of the Authority. And perhaps it will provide misleading information to the Authority.

So, I question the validity -- the technical validity of this report. I have just cited two examples and I think if you sit down a little sometime, we can pick up others, to pick some greater holes in this report.

Thank you.

(Applause.)

MS. GOLDSMITH: My name is Amy Goldsmith, G-o-l-d-s-m-i-t-h. I am the Boston Director of Clean Water Action Project. And we are working within the Boston Area to pass resolutions and to work with Boston Area and MWRA communities to insure that resolutions are passed along with the communities where the water is proposed to be taken from. Passing these resolutions, opposing the diversion, and supporting various conservation measures, leak detection

measures, retrofit, and other assorted watershed management and water protection measures.

Something that is very unique about Clean Water Action Project is that we have a field canvas. These are people who go door to door, generate support for issues such as this. And I am sure many of you, actually most of the letters have been going to Chairman Hoyte, at this point in time, and to appropriate legislators, to express the concerns of the citizens out in the public. Not everybody can take the time to come to a hearing. But we get hundreds of letters a week that we, then, send off to the MWRA. And I should just hope that for every person who comes here, there are thousands of people out there who are very concerned about water quality, and very concerned that their water be protected. And that it be cost-effective for them, so that their rates will not go out the roof.

And the concern is that the river diversion will, in fact, raise the rates to a point where they will not be able to deal with it, as well as having to deal with a lot of other issues, relative to water management, such as the sewage treatment plant.

So, I just wanted to let you know that, in fact, Clean Water Action Project gets a very, very strong message, day in and day out, from people in the community.

And we will work within the MWRA towns, as well as with other communities, where the supply is being proposed to be taken. And work for those conservation measures and not for the diversion.

There will be other statements made at the Boston hearing. So, I will stop now and let others speak.

MS. MUDD: My name is Barbara Mudd. I am co-chairman of the Sudbury River Citizens Advisory Committee.

Since there have been so many very good speakers in the past, I am going to make this very short, in deference to my co-chair there.

I would like to say something that is quite different, in that we had a smaller study that was previously talked about, which was supposed to yield 20 million gallons a day, but in fact would net only 16½. And we sent in comments two years ago about the draft EIR. And I see in the summary that we are referred to as an EIR, as if it were accomplished. And that is not the case. We are still waiting for the final EIR. None of our comments or questions were addressed. And, in fact, I have an exchange here with Secretary Hoyte, about the things that were supposed to be done, that have not been done.

And since you perhaps didn't see any of these things in the course of the transition from MDC to MWRA,

including our comments, I would like to leave a copy of all those things with you.

Thank you.

(Applause.)

MR. SISSON: My name is Thomas Sisson, S-i-s-s-o-n. And I am also a co-chairman of the Sudbury River Citizens Advisory Committee.

And at this point in the hearings, it is a little difficult to try and say something new, and also to try and bring something to you that is somewhat meaningful.

I am going to skip over my notes. Because what I would like to do is focus my attention on you, the Authority, not on the study itself. Rather, you and the statutes that have brought you into being.

First, there was the Interbasin Transfer Act. And my reading of your summary report, indicates that your study does not conform to that Act. Specifically, as far as the criteria for approval of transfers; that is, as the Act requires, that all reasonable efforts have been made to identify and develop all viable resources in the receiving area.

Well, I just quoted from one of the five certeria in Section 8D. And I hope that you will insist that any future study or the continuation of this study will

include, as required, a study of these criteria.

Secondly, I would like to point out something that one of the employees of the Authority, a statement that he made, Marcus Kempe, who was the manager of the Sudbury study. He declared that the Sudbury River diversion does not come under the Interbasin Transfer Act. And I would like you to understand that that has been researched by us and by the representative of the Sudbury River, and it is our understanding, it was quite clear, that the framers of the Act intended that the include the Sudbury River diversion.

My second main point is that the Authority was created by the legislature to approach water problems with new guidelines. But your study has ignored the new Act in some ways.

For example, the Act specifies that a continuation of delivery of water shall be made, provided that you, the Authority, shall find that six specific topics have been addressed. And, don't forget, all contracts with your user communities, expire on January 1, 1990, by which time you will have to determine whether the topics have been assessed and the requirements met.

The point should be clear. The study that you have before you refers to MDC requirements, not your MWRA requirements.

Therefore, on the basis of these thoughts, I would like to present for you some new figures, to replace those in Table 2 of your report. That is on Page 21.

As you know, the study presents you with a need for 457 million gallons a day in the year 2020. That is 120 million gallons a day more than the 1980 base demand.

Most of that increase comes from the categories that no longer obtain for this Authority. MWRA is already committed to conservation and demand management. So that you can assume that metered nondomestic use, which the study predicts will rise by 41 million gallons per day will rise by only 10 million gallons per day. And the so-called potential demand categories will be considerably lessened by adherence to the Authority's enabling legislation, and rise by only 45 million gallons a day. Giving you a demand in the year 2020 of 398 million gallons a day.

Furthermore, you should save from unaccounted for water 50 million gallons a day; from local users, 20 million gallons a day; from MWRA system usage, 10 million gallons a day; and from your demand management program, 32 million gallons a day. Giving you a savings of 112 million gallons a day. Reducing your demand in 2020 to 286 million gallons a day; 14 million gallons a day below your estimated safe yield.

I urge you, the Board members, to spend more time, to spend a little more money, and to get a study that is addressed to the present laws of the Commonwealth.

You have an enviable job, an enviable responsibility of pursuing an innovative course of action based on the legislation that established this Authority.

Thank you.

(Applause.)

MR. WAGGETT: Ladies and gentlemen, my name is Jim Waggett, W-a-g-g-e-t-t, representing the Town of Concord, Natural Resource Commission.

Since there is some competing with the Celtics, I think I will go relatively fast through my notes.

The Natural Resource Commission of the Town of Concord would like to register its opposition, particularly to the diversion of the Sudbury River, as noted in the Upper Sudbury watershed alternative.

Distortion of the rivering systems in Concord has long been and presently is a long-standing commitment of our community.

In our planning, we have always placed a major emphasis on water resources. And in our recent open space plan and other planning documents, have noted in its goals and objectives the need and the necessity to protect the

quality and the quantity of the present and future water supplies; to preserve the capacity of the Town's rivers and tributaries to act as natural flow systems; and, also, to protect the recreational wildlife and open space values of the rivers and tributaries within Concord.

We believe that the Upper Sudbury River watershe diversion threatens these needs, and urgently request the Massachusetts Water Resources Authority to reject this alternative and other alternatives under the Interbasin Transfer law requirements.

Thank you.

(Applause.)

MS. TUFTS: My name is Rosaline Tufts, T-u-f-t-s. I am the Executive Director of the Merrimack River Watershed Council, and I am here simply to present a group of resolutions, signed by various towns and organizations in the Merrimack River watershed. There are more coming.

MS. VALGE: My name is Christy Valge, V-a-l-g-e. And I am the treatment chemist at the Billeria water treatment plant.

As you know, the Concord River is the only source of drinking water for the Town of Billerica. And my concerns are about the deterioration of water quality in Concord River, as a result of the diversion of water from

the entire 75.2 square mile Upper Sudbury watershed.

I was worried when only a small portion of this watershed was going to be diverted. And needless to say, right now, I am very concerned.

My main worry is about the reduction of dissolved oxygen content of the Concord River and what its effects will be on the release of toxic materials from the sediments.

First of all, the Upper Sudbury watershed, being 75.2 square miles is not 6 percent of the water in Concord -- in Billerica -- but it consists of about 20 percent of the drainage area above the Billeria water treatment plant. And all this water is essentially removed, when the diversion takes place.

The studies done for the Sudbury water treatment plant, DIR indicate that two of the most important effects of the diversion, besides lowering the water level and decreasing the flow, are the increase of the temperature of the river and decrease of the dissolved oxygen content.

We know that priority pollutants, such as toxic organics and metals are present in the river. They are mainly present in the sediments of the Sudbury, Assabet, Concord river system, and they are found in the fish.

The soluability of these metals is largely

dependent upon speciation. Some complexes are very soluable, allowing the metal to exist, while insoluable compounds exist as particulate solids.

Biological mechanisms are important in the cycling of metals. Biotransformation is a significant route for recycling the metals for sediment into the water calm.

Microbes acting on the organic and inorganic complexes produce metalated forms of the metals that are often much more toxic than other metal compounds. These microbes work in an environment devoid of oxygen or in low oxygen. These metals can also be simply dissorbed from the sediments underreducing it. That is low-dissolved oxygen conditions.

When do these low-oxygen conditions occur and what influences them? These low-oxygen conditions occur, one, after a summer flood, when copious amounts of organic material is washed into the river. It takes oxygen to stabilize and decompose that material. The low-oxygen conditions occur in water, when the river is totally ice-covered, and oxygen influx from the atmosphere is cut off. Diversion would reduce the turbulence and the level of the river and the freeze-up would occur much sooner.

Low-oxygen conditions occur during warm weather months, when the water temperature is high and there is a lot of biological activity in the river.

A computer simulation performed for the Sudbury treatment plant EIR indicated that the sort of a cut-off temperature was 17 to 20 degrees Celsius. And when the temperature rose above it, the oxygen content in the river would really start to decrease.

When the water levels are high in the Concord River, then, this temperature, I mean 20-plus degrees, is reached about the middle of June, as was the case in the years of 1982, 1983 and 1984.

This past year, in 1985, and in 1986, the water levels have been much lower. And 20 degrees has been already reached by the middle of May.

For all the different flow regimes that were modeled in the previous studies, the one effect was increase of algae concentrations in the river. And these mainly below the confluence of Assabet. As we know, Sudbury is a clearer river. It has only one sewage treatment plant on it that discharges into Hopp Brooke, where Assabet has seven sewage treatment plants.

And one thing that these plants don't remove is phosphates. So, the algae growth is copious below the confluence. The concentration of algae is of great concern for drinking water purposes, because of their effect on the fluctuating Ph turbidity, taste/odor, introduction of

solved oxygen.

The algae concentration can be expected to go up 50 percent with a 40-million-gallon-a-day diversion. That is, again, quoting the previous study. I mean, I would say not study, but modeling.

The algae in their photosynthetic activity, produce oxygen in the superficial layers and, so, you would say that the top foot or so is supersaturated. But as the growth of the algaemat becomes dense, it shades all sunlight and the algae die, settle to the bottom, and create complete unoxic conditions on the bottom. And you could even get the formation of sulphur -- hydrogen sulphite.

MR. RALPH: Could you summarize pretty quick, please?

MS. VALGE: Yes.

The draft EIR for the Sudbury water treatment plant was not acceptable, because the effects of the oxygen depletion were not sufficiently studied.

Because the Concord River is shallow, the water intake at Billerica water treatment plant consists of three 36-inch openings, just one foot above the river bottom. And it goes to the height of 108 feet, an elevation of 108 feet.

MR. RALPH: Could you summarize for us,

pretty quick.

MS. VALGAE: Yes.

The Billeria water treatment plant has an intake that is at the river bottom. And when the metals become soluble, we cannot help but draw that unoxic water into our treatment plant. And should the water level, as a result of the diversion, drop to an elevation of 108 feet, we would lose our entire water supply, and we couldn't treat it at all, because of it.

So far, we have not had too many problems in treating the water. We hope that we can still continue to treat it and give our customers unpolluted water.

Thank you.

(Applause.)

MR. McGOVERN: I am John McGovern from the Billerica Waterworks, M-c-G-o-v-e-r-n.

What I have to say is far less technical than my co-worker. Billerica Waterworks was built in 1898, to provide the citizens of Billerica with an adequate, clean supply of water. Fifty-seven years and three wellfields later, the Town gave up on wellfields and ground water and constructed the Billerica Waterworks as it is now. It has been expanded twice since that time. It is now valued at about $6 million.

We feel that if you divert the water from the Sudbury, we may reach a point where we cannot pump water into our treatment plant. That will leave the 36,000 people in Billerica with no water at all.

The people in Billerica have gone through great expense over the decades to provide themselves with adequate water. They do not have the resources to import water into their town; whereas, the State agency can look elsewhere for water.

So, we are desperately serious that you do not take the Sudbury River. Right now it is adequate for our supplies and should be for some years to come.

Thank you.

(Applause.)

MR. JOHNSON: My name is Frank Johnson. I am the Director of Public Works in the City of Lawrence.

I have been listening to some of these comments that the people have been making all evening. And, in general, I have to agree that those who question the professional merits of this study, it does not seem adequate in respect to the magnitude of the project what you are studying or wanting to undertake here. It is a very feeble attempt, from a professional point of view, to justify diverting an entire river to serve the needs of Boston.

From what I can perceive of how the study has been presented here, you talked about the needs of Boston to the year 2020, and how much more water it needs. And you refer to the provincial areas, such as the Merrimack River, as an alternative source for feeding Boston. But, in fact, we are not living out in an undeveloped world. The Merrimack serves a lot of developed towns and cities and municipalities. And you just can't take from the Merrimack because it's there without affecting the people that are already along the river.

To make this study a considerably more credible document, it would seem to me that you should have a further study that would incorporate specifically every town and city along the Merrimack and its tributaries as part of the study, and the effects of drawing down the water level as these people have noted. That if you can go over the water level or surface a foot or two even, you effect the intakes of towns throughout the entire region. The City of Lawrence is no exception.

If you lower the water level of that river, below the crust of the dam, even inches, you are talking about falling below the intake for the City of Lawrence, where the water supply would be. Are we supposed to reduce or lower our intake down to the bottom of the river? Maybe

that's possible; maybe it isn't. But I think your study should definitely answer these questions, town-by-town, and convince the authorities in each town that indeed, by lowering the water level, you are not going to affect their water supply.

You are certainly satisfying the people in Boston and their needs. But I think to be responsible and professional, you definitely have to go back and talk to each one of these cities that's effected and convince them that their needs and water requirements for the next forty years are also going to be met.

MR. RALPH: Thank you.

(Applause.)

MR. RALPH: They are going to close the hall. So, we are going to have one quick remark from labor. And then, we are going to have to wrap up.

MR. MUSCOVITZ: Hello. I'm Dave Muscovitz, M-u-s-c-o-v-i-t-z, member Lowell Labor Central Council.

All the speakers prior to me were great, so that leaves me with just history.

All these towns up here depend upon Lowell. The flood in 1938 proved that. We are talking right now not depression. We're talking survival. In 1938, we closed the gate, St. Francis Gate, to stop the waters from coming up

here to flood out the towns. That was before my time. I was born in 1940.

Lowell now has a natural historic park. It also has a museum there that shows a movie. The movie will show you what the Merrimack River has provided and what the future plans are. In fact, we have a working canal now -- boat trips.

Cape Cod -- I don't think many people know it -- But the Cape depends upon Lowell, Mass. The main feedline from the Cape goes right to the Merrimack River at the waterfalls, at the dam. The water has to be at a certain level. If it doesn't it shuts off the power and it goes allthe way to the Cape. The whole Cape will have a blackout. That main line goes right over the bridge.

Water survival. Industries are building up around this area great again. They depend upon the water, too. That is why they move in this area.

Like I said a little while ago, I hate to see the water shut off. Low flow coming up this way to keep industry going -- We all need the industry up this way. We have to continue working and, then, our grandchildren and great grandchildren. So, we are not talking about just today.

Labor is against diversion of the Merrimack River. And I will end it with that.

(Applause.)

MR. RALPH: On behalf of the Board and the Executive Director, Mr. Gritzuk, I just want to thank everybody for coming.

What Representative Hermann said or what was said in the newspaper by Mayor Ryan, I want to just assure everybody here that we are not here just going through the motions. Your information, your comments, your testimony, will certainly go a long way in helping us put together a prudent, long-range water supply policy.

Thank you very much.

(Applause.)

(Whereupon, at 9:40 p.m., the meeting was adjourned.)

C E R T I F I C A T E

I, Joanne Santasky, a Notary Public in and for the Commonwealth of Massachusetts, do hereby certify that the foregoing record, Pages 1 through 87, inclusive, taken by me by dual-track recording, is a true and accurate record, to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my Notarial seal this 3rd day of July, 1986.

JOANNE SANTASKY
Notary Public

My Commission expires
on August 25, 1989.

MWRA WATER SUPPLY STUDY AND ENVIRONMENTAL IMPACT REPORT - 2020

PUBLIC MEETING ON SUMMARY REPORT

June 10, 1986
GARDNER AUDITORIUM
BOSTON, MASSACHUSETTS
1:30 p.m.

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CONVENTIONS — HEARINGS — CONFERENCES — LEGAL PROCEEDINGS

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PUBLIC COMMENT PERIOD 29

P R O C E E D I N G S

MR. RALPH: Good afternoon. On behalf of the Massachusetts Water Resources Authority and our Board of Directors I'd like to welcome you here this afternoon. We're here to get your testimony and comments and input into our water supply study report. We want to take your input and help us put together a policy for long-range water supply for the metropolitan area.

Before we begin taking comments I think it's important that we get an overview of what the study is all about and so that you'll have a better understanding of what's in front of our Board to make a decision on. To give that overview I'd like to introduce Michael Gritzuk, Executive Director of the Massachusetts Water Resources Authority.

MR. GRITZUK: Thank you. And on behalf of the Board of Directors of the Authority I would like to welcome all of you here today. This is a public meeting, as Mike Ralph has indicated. And what I would like to do at this

point in time is to read a statement to you on behalf of the Authority that basically summarizes the study and where it is today.

Recently after six years of research and analysis a summary of the long-range water supply study's 50 reports was published. Before any decisions are made the Massachusetts Water Resources Authority Board of Directors is holding this meeting to learn what the public thinks about the study and the options analyzed, what concerns you have, and what your suggestions are to the Board members as they begin their review of the issues and prepare to make water supply policy decisions which will effect water use into the 21st century.

First, I want to outline for you the framework in which these important issues are being discussed, what this new Authority is, what the water study covers, and what steps are added in the planning process.

The Massachusetts Water Resources Authority or MWRA was created by the legislature in 1984. In 1985 M W R A assumed all sewer

functions and some water functions that had previously been provided by the Metropolitan District Commission or MDC.

MDC retains ownership and maintenance of present and future watersheds and reservoirs. MWRA distributes this water to 46 cities and towns, 36 in the Boston metropolitan area and 10 others located in the vicinity of system conduits and reservoirs.

From time to time we are also called upon to serve nearby communities which have temporary emergencies. We provide water to the homes of approximately 2.4 million people and to the jobs of many others. The supply system is an excellent system reflecting the foresight of the early planners, Quabbin Reservoir, storing water from the Connecticut River Basin and the Wachusett Reservoir, storing water in the Merrimack Basin at the total capacity of 477 billion gallons.

Since 1969 there has been concern that the demand on the system regularly exceeds the reliable safe yield. As responsible managers

of the water supply to half the citizens of the Commonwealth, the MWRA and MDC are faced with the problem of bringing supply and demand into balance.

Concerning the study, MWRA assumed from the MDC the lead role in a difficult but essential task to plan prudently and well in advance to meet water needs in the future. The long-range water supply study and Environmental Impact Report project begun by the MDC and now continuing under MWRA covers a 40 year planning period ending in the year 2020. The consulting firm of Wallace, Floyd Associates assisted by the 12 subconsultants of various technical specialties has conducted the study.

The scope of the study was determined by the Massachusetts Environmental Policy Act or MEPA, with broad public input into the issues to be addressed. Secretary Hoyte who will follow me will tell you more about MEPA, the MEPA process, and the public participation which is part of that process.

The study was begun in response to

the 1978 state water policy direction that the MDC should study the use of Connecticut River water and assess the impacts of doing this and also study alternatives to this project, including a "no action" alternative and including demand management.

An unusually large public participation component accompanies this study. A Citizens Advisory Company, called the Water Supply Advisory CAC or WSCAC was statutorily established under MEPA. WSCAC was funded by the MDC and now by the Authority. WSCAC has reviewed each step and offered input and advice since the initial scope of the study. In addition, the consultant contract includes a broad public information program.

The intent of the study is to produce a 40 year plan for the metropolitan water supply and an Environmental Impact Report on the alternatives included in this scope issued by MEPA as required under Massachusetts law. The study includes three main elements: Estimates of potential demands upon the system to the year

2020; analysis of the present supply capacity; and assessment of nine options to meet demand that may exceed present supply capacity.

The study, which has not as yet been approved by the Authority, estimates that by 2020 there may be a demand for water from this system of 150 million gallons per day more than present supplies can provide. These base line demand projections incorporate an estimated reduction of 30 million gallons per day from ongoing state water conservation programs now in place and expected to continue.

Nine detailed assessment reports each of which will be included as an appendix to the Draft E I R have been published. They assess environmental, social, economic, and engineering aspects of nine alternative options to increase water supplies and to reduce demand. The nine alternative studies are: Demand management, watershed management, user sources, upper Sudbury watershed alternatives, Connecticut River, Millers and Tully Rivers, Merrimack River, Plymouth Acquifer, and the no action option.

Desalination was investigated early in the study and dropped from further analysis with the approval of MEPA because of its high cost.

At this point I would like to briefly summarize the nine options, demand management being the first. Demand management was the first alternative study. Research was conducted on water conservation experience throughout the nation, and present system water use was analyzed to determine what techniques would be most effective to reduce water use in this system.

A demand management plan developed from this analysis has a potential for a savings of 30 million gallons per day in addition to the 30 million gallons per day savings in the baseline.

The MWRA is presently reviewing this plan to determine the appropriate program for its system. We are already working to institute rate structures that encourage conservation and have initiated design work to

pilot test a domestic device retrofit program to accelerate installation of water saving devices in households. We are working with our communities to develop a system-wide leak detection and repair program. Many of our communities have such programs already in place.

I especially want to mention the achievement of the City of Boston, our largest user community, which has made reremarkable progress in leak detection and has already saved 15 million gallons per day from leak detection and various other demand management efforts.

MWRA is working on programs to increase the efficiency of our system's infrastructure. We are also continuing the substantial water conservation education and information program begun by the MDC.

Users Sources. In the user sources alternative, 28 small sources located in user communities are reviewed. Most of these are groundwater sources. The MWRA Board will very carefully consider which additional water sources it may be feasible to develop within user

communities. The yield from these sources could be as high as 10 million gallons per day.

Watershed Management. The watershed management alternative assesses how changes in vegetation on MDC-owned watersheds might increase water run-off while maintaining aesthetic environmental and wild life values. The estimated yield is 5 million gallons per day. Watershed management is already a program and plan of the MDC.

The Sudbury Watershed area. The Upper Sudbury Watershed Alternative assesses reactivation of the MDC Sudbury revervoir system which is presently used only in emergencies. The addition of a water treatment plant at Sudbury Revervoir would increase present on-line supplies by 20 million gallons per day. This is also the subject of a separate Environmental Impact Report.

River Alternatives. Using part of the high flows of the Connecticut, Millers/Tully, or Merrimack Rivers has been examined and yields were estimated using specific environmental and

legal constraints. The MWRA views the proposed river diversion alternatives as a last resort only.

The Connecticut River. The Connecticut River alternative was assessed at a yield of 63 million gallons per day coming from the main stem of the river.

The Millers/ Tully. Millers/Tully Rivers are in the Connecticut River watershed. This alternative could supply 38 million gallons per day.

The Merrimack. The Merrimack River alternative was assessed at a yield of 120 million gallons per day through a water treatment plan in Tyngsborough.

Plymouth Aquifer. The Plymouth Aquifer alternative assesses the impacts of pumping 15 million gallons per day of groundwater from wells in Plymouth to the distribution system in Quincy.

Finally "no action". A no action baseline is part of every Environmental Impact Report. This study examines what would happen if

demands rise to the amount estimated but no new supplies are developed. One response would be to build a water treatment plant for present sources. This would allow a lower reservoir drawdown and make an additional 30 million gallons per day available.

I'd like to come to several conclusions and discuss the steps ahead. The study makes no recommendations at this time. No decisions have yet been made by the MWRA as to future water needs policies or plans.

The Board of Directors deliberations on these matters will take some time. They will carefully consider the public comments as they decide how much additional water, if any, will be needed. If additional supplies are needed, they will establish criteria for selection and choose preferred alternatives.

The Board's decisions will be reported in the Draft Environmental Impact Report that will be submitted to MEPA.

Other Federal and State involvement and approvals. Federal Environmental

requirements will apply to the alternatives including in some cases an Environmental Impact Statement. Several Massachusetts laws, including the Authority's own Enabling Act, the Interbasin Transfer Act and the Water Management Act regulate new supply development.

The Department of Environmental Quality Engineering must approve any new water supply. MDC will be involved as the owner of any new source. The Water Resources Commission must approve any interbasin transfer, and legislative approval must be obtained for any proposed new water sources.

Our conclusions. As I conclude this overview of the MWRA planning effort, I want to assure you of three things. First, MWRA is committed to conserving water and is already moving to do this. Secondly, MWRA is dedicated to protecting and improving natural resources whether in Boston Harbor or in the Connecticut Valley. The MWRA will not pursue any project that harms the environment or deprives a supply area of needed resources.

And thirdly, MWRA will fulfill its essential public purpose to provide safe and sufficient water supplies to the 2.4 million people whose homes we currently serve and to the many others whose jobs depend on this water system and to those who need this water supply in the decades to come.

We intend to accomplish this mission in a responsible manner and we ask for your advice and assistance in this important decision-making role ahead. Thank you.

MR. RALPH:. Thank you, Michael. At this time I'd like to introduce the members of the Board present. From my left, Lorraine Downey, Charles Lyons, William Brutsch, Director of the Water Division at MWRA, and to my far right Bob Ciolek, Tom Arnold. And my immediate right, Chairman of our Board, Jamie Hoyte.

Mr. Hoyte is also the Secretary of Environmental Affairs, as you all know, and that office with it many branches plays an important role in the determination of any policy that the Board of Directors of M W R A formulate. I think

it's important that you understand the role the Secretary plays and his office plays, and Jamie maybe can explain that.

CHAIRMAN HOYTE: Thank you, Mike. Let me just first add my thanks to Mike Gritzuk and Ralph's comments. In a moment we'll be hearing from you, which, of course, is the most important item on the agenda today.

What I'd like to do before we do that is to briefly summarize the various roles the Secretary of Environmental Affairs plays in this process, and in particular, try to outline that role as it relates to MEPA. There are three principal roles that are played in connection with the long-range water supply study.

The Secretary of Environmental Affairs meets with the Governor Dukakis cabinet and is chief environmental spokesman for the Dukakis administration. As such I also have oversight of most of the other state agencies that were mentioned by Mike Gritzuk who are involved in this process, namely, MDC, DEQE, and the Water Resources Commission which I chair by

statute.

I as Secretary of Environmental Affairs am Chairman of the Board of the Massachusetts Water Resources Authority. And finally also by statute I'm responsible for the implementation of MEPA, Massachusetts Environment Policy Act, and I'll comment briefly on how the Long Range Water Supply Study fits into the requirements of MEPA.

However, at the outset, I'll make my comments as the Governor's chief spokesman on environmental matters. I would like to read to you a letter from Governor Dukakis to the Water Resources Authority.

This letter states succinctly, but forcefully, Govern Dukakis' position on the topic of water supply in the Metropolitan District Commission. I'd to read that verbatim.

"Dear Mr. Gritzuk, while I recognize that the Massachusetts Water Resources Authority has an obligation and responsibility to explore alternative water resources for future projected needs, I want to take this opportunity

to restate for the record my position on the proposals of diversion of certain rivers outside the Metropolitan area including the Merrimack and Connecticut.

As you are aware, the Interbasin Transfer Act, Water Resources Act and Water Management Act seek to conserve and protect our natural resources in the environment in the interest of water uses throughout the State. Together, those three pieces of legislation which I supported and signed into law would embody clearly and definitely the management and enforcement of procedures so that our environment remains Both preserved and livable. They reflect the intent to the make any further diversion of the rivers a last resort to be considered only after every feasible conservation measure has been taken. That surely is not the case in the Metropolitan water system.

We, accordingly, cannot and will not support a new approach to divert any river to the MWRA system. I urge the authority to focus instead on conserving existing resources and

management of water demand more efficiently in the future. Sincerely, Michael S. Dukakis, Governor."

I just want to restate that, and actually I think Mike Gritzuk in his comments noted the portions of these Acts which were identified by the governor and we certainly as an Authority understand quite clearly their need.

Let me now, if I can, comment briefly on the requirements of MEPA as they relate to this matter.

As I indicated, as Secretary of Environmental Affairs and with the official responsibility for MEPA I will be overseeing the process as it relates to this. I can assure you all relating to this study will be required to be carefully structured, fully thought out, and painstakingly scrutinized. And all public comments will have to be fairly responded to before any decisions can be made.

In this task this in the MEPA task I'm assisted by the the Water Supply Citizens Advisory Committee, or WSCAC, as called for

short.

As Mike indicated, this group has been in existence since 1977 which created a joint agreement with the Secretary of Environmental Affairs, the MDC, and the Connecticut River Citizens Advisory Committee.

In 1979 the MDC entered into a MEPA review process. WSCAC was adopted as the official Citizens Advisory Committee among other duties to assist the Secretary in fulfilling his responsibilities, review responsibilities. Over nine years of its existence the members of WSCAC have diligently and boldly experienced the issues.

WSCAC is going to be on the Agenda commenting on the Summary Report and continuing to assist the Secretary in the future use of MWRA Water supply. I am, of course, grateful to them for their dedication and hard work.

I should note under procedure that following today's hearing, following the review, Authority Board will make a decision based on all the alternatives being considered. The Board's

decisions will be reported in the form of the Draft Environmental Impact Report.

At that particular time MEPA will have a formal comment period and hold public hearings. This will give the public an opportunity again to comment on the water supply plan developed by the Board.

Finally the E I R will then be prepared incorporating any more additional information that may be required pursuant to MEPA.

So again, Executive Director Gritzuk, fellow Board members and I are very pleased that you're here to make comments on the Summary Report and any aspects of the Long-range Water Supply Study. Thank you very much.

MR. RALPH: Thank you, Mr. Secretary. At this time we'd like to begin taking your testimony and that's the reason we're here. I'd like to introduce Ann Gannon, chair of WSCAC, Water Supply Citizens Advisory Committee.

MS. GANNON: We really appreciate your having these three hearings. They've been

very helpful in general and we appreciate Mr. Secretary's kind remarks and we are delighted to see the members of the Board of Directors in full force almost here today, and Mr. Brutsch of the Water Division.

As Mr. Ralph said, I'm Ann Gannon of WSCAC, Water Supply Citizens Advisory Committee. The Long-Range Water Supply Study EIR-2020 goes on and we are a 35 member voluntary, all-voluntary committee from across the whole of the Commonwealth, and as Mr. Secretary said, appointed by him.

As Mr. Gritzuk indicated, WSCAC has responded to every plan, project, and report which MDC and MWRA and consultants have prepared. Our comments are on record. WSCAC has criticized both the assumptions and data of the study, particularly on impact assessments of river diversions and on the potential management of the system through leak repair, protection of local resources.

While the consultants and the water planners have planted their feet against

these study improvements, it is now clear that the legislature, the governor and the public in their review of this study find the WSCAC comments on target. The study has already demonstrated its value in pointing to the upgrading and improved management of the water supply system. The water supply system requires MWRA legislation and has provided the tools to accomplish this needed management.

Program and funding mechanisms should be established through to accomplish these ends. Planners who think more of everything is necessary are now frequently questioned.

In another era, old ladies in tennis shoes have reminded us that our resources are finite. Let us follow their footsteps. And in my footsteps I want you to hear Alexandra Dawson as Executive Director who is one of our co-directors and a very articulate spokesman on the cause. Thank you.

MS. DAWSON: Thank you. I became the Executive Director of the Citizens Advisory Committee in 1980. I was not the first. I was

already the second person. And after a few decades in that post we divided into three parts for the purpose of making sure that when you had three hearings you wouldn't have to hear from us, any of us more than once.

WSCAC is the formally established citizens group designated by the Secretary of Environmental Affairs to comment to the proponents, to the EOEA and the public on all aspects of the Water Supply Study, that is to say there is about 350 reports and we have commented on all of them.

Throughout the study WSCAC has tirelessly made a few points over and over again. We have contested the water needs projected by the consultant. We have emphasized the environmental degradation which would result from any major augmentation alternatives through diversion, whether it would be damage to the source itself, as in most of these systems, or also the possible contamination of the Quabbin Reservoir. We have pointed out the availability of better quality and cheaper water through

proper management of the system itself, conservation, watershed management, the expansion and protection of local sources.

And we're pleased to see that many state officials, including the Governor, now appear to agree with those views.

The State has now adopted management methods and a preference for local sources of water as official policy expressed through three major laws, including the statue which created the Authority itself.

But a policy is one thing and we are now trying to see that this turns into real life action through the Authority. What remains for the Authority now is to correct certain flaws in the early parts of the study which effect the entire process of the study.

Primarily, the Needs Report of 1983 has got to be updated with a clearer understanding of the possibilities of an aggressive leak repair program in the MWRA system and in its client communities, of the Authority's own pipes and within client communities, 46 of

them, particularly the old ones.

Secondly, a category called PADPU, which is Potential Additional Demand from Partial Users, must be dropped, we believe, from the estimated needs. It derives from a concept of legal or, quote, "statutory", end quote, demands which we believe have been superseded by the legislation that created the Authority. This category would account for 55 million gallons a day of new water. That's as much as most of the major diversions.

Finally I want to say a couple things about the Sudbury study. In the recent opposition expressed by the Governor, by Commissioner Geary of the MDC and so on, against major diversion, this seems to give some peace of mind to Sudbury, not to river diversion, because although once part of the MDC Water system -- that was then. This is now.

And what is needed to be done if the Sudbury is still being considered for diversion is to complete the separate studies of the Sudbury River diversion, of the treatment

plant which was begun some years ago and which has not been completed, in accordance with the original scope set by MEPA. And this is very severe. We must have a better sense of the minimium stream flow in that water.

We also need to know what the demands on that system will be. The governor spoke about the preference for not hurting any river area that has demands of its own clients. Sudbury is clearly one of those places.

We hear that Bedford will be the latest to tap in. Now you not only have three or four communities directly using that drinking water, you have a host of communities using it for wastewater dilution which is a client use also. And we think that those uses should take precedence in Sudbury over some kind of major diversion for outbasin use.

After these things have been done the Authority can turn to its major tasks. And those, in my opinion, are a permanent continuous program of leak detection and repair throughout the entire system and the systematic discovery

and protection of local water supply sources.

There's lots that remains to be done to make sure that 80 million gallons a day of water supply provide are not redundancy in the system as well as back-up, and are not being dropped, paved over, inadvertently harmed. This can be done under our new laws. But it's going to take some help from the Authority. Thank you.

(Applause).

MR. RALPH: For the sake of protocol I'd like to have the members of the legislature that are here give their testimony. I only have two requests. Because we have so many people that have indicated they would like to testify, if we could keep the testimony anywhere from three to five minutes. If somebody has written testimony, and they can't summarize it in the five minutes, leave the written testimony with the stenographer and it will be duly recorded in the record.

And secondly when you come up to testify, again for the sake of the stenographer

spell your last name, and if you have any affiliations with any of the watersheds, any superintendents of any towns, may you please so state.

MR. HEALY: For the record, I am Representative Jay Healy, House Chairman of the Special Legislative Commission on Water Supply. Senator Amick, Senate Chairman will follow me very briefly. We have a cover statement that we'll present to the stenographer and Board. I'd just like to summarize briefly our position.

As you well know, the rules of the game the last six or seven years have changed with water supply. We've passed three major pieces of legislation since this long-range study went into effect.

The first piece of legislation that passed, the Inter-basin Transfer Act, which calls for some very difficult political decisions to be made by a series of individuals and the Board before a diversion might take place.

The Legislature, Water Resources Commission and others will have an input into

that decision.

The second major piece of legislation that has been passed, the Water Management Act, deals with allocations of water in the Commonwealth. It seems to us in the legislature that this Act will go a long way towards decreasing demand and establishing a better allocation system in our state which will once again effect the long-range demand projections of the study.

The third and most important piece of legislation that's been passed is the MWRA Act and if you look closely at Chapter 372 you will see a mandate in that existing piece of legislation to deal with the demand management objective, to deal with leak detection, and a whole array of things the legislature has already mandated to your Board to put in place.

Regardless of what the decisions are on this particular study, and those of us in the legislature feel it's very important for you to take that mandate very seriously and go ahead with appropriate leak detection, appropriate

water conservation and pricing strategies, and not to have this drag on and on.

We are very respectful of the decisions you've been making with the sewer authority problem, but those of us in the legislature who been following the impacts feel the time has come for you to take concrete steps to lower water use and sewage use within M W R A comunities, specifically since the rules of the game have changed. It seems to us that this leads to less water needs in the future.

Mr. Gritzuk mentioned Boston. There's been 30 million a day less that are used in Boston because of aggressive leak detection. Salem and Arlington also. And we urge you to spread these kinds of leak detection programs out in terms of unifying a coherent program for all the M W R A communities.

We question the statistics in your demand studies that says there are about 90 million gallons a day of unaccounted-for water and you can only come up with roughly 20 million gallons a day out of that large figure. We think

that figure is inflated.

And similarly when you talk about contamination of local water supplies I think the study estimates in the next three or four years that over two-thirds of the local water supply will become contaminated. We feel that figure is inflated and needs to be downgraded and can't believe that we're going to allow two-thirds of our present water in these user communities to basically just be contaminated.

The last point, one of the politics of this particular situation, the Governor has come out fairly strongly in opposition to diversion. People on our Special Legislative Water Commission on water supply from more urban areas really do agree. Before we talk about using diversion, we should really fix the water systems in Boston, fix the leaky pipes and it seems to me that's a very strong mandate.

You already have that mandated in your Enabling Act. And I urge you as strongly as I know to go ahead with demand management alternatives and not to use the study as a

practical for slowing down and not taking active concrete kinds of steps.

Those of us in the legislature would like very much to be of assistance to your Board. We're ready to push legislation, ready to give you assistance if you need money and funds to help leak detection and help MEPA in other areas to get a rational water system in the MWRA communities.

But we warn you now that if you do not use your discretion wisely, if you do not move quickly, we're going to move quickly to take discretion away from your Board, to force you to put these things into effect, because that is just rational policy and you need to save water, fix the pipes before you talk about diversion from any place in the Commonwealth.

We urge you to do that and look forward to working with you if possible and hope you move as quickly as possible. We're waiting for you to act and urge you to do it quickly. Thank you very much for taking me out of turn.

SENATOR AMICK: I am Senate

Chairman of the Water Supply Commission which has been in existence since 1978 and I'm proud that I've been in the chair since 1978.

Following up on what Jay has commented, I, too, as a legislator and as a Senator feel very strongy that your Board must fulfill the mandate that was given to you by the passage of your Enabling legislation. That mandate is very strong. It's very clear. It says that you must implement conservation measures, pricing structure provisions to insure the greatest amount of conservation for the member communities in your district.

And I know that you've been tied up with another issue in Boston Harbor. But we are very anxious for you to get on to the issue of water and to look at water not only from the perspective of M W R A member communities, but from the prospective of the needs and the solutions for the entire State.

Some of the other comments that we made in our testimony to you include the fact that the Summary Report in our opinion improperly

considers the MWRA water supply system as an open and available resource to all communities in the vicinity of the service area. And Section 8 D of the Enabling Act gives you the discretion upon deciding new or increasing the use for present users. And I hope that you will consider very strongly that discretionary power that you have.

The preliminary report does not account for the discretionary powers granted to you and therefore overstates the amount of water that will be needed to supply new or partially supplied users in the future.

The MWRA needs to become more active in encouraging present user communities to protect local water sources so that we can reduce the potential demands on the system in the future. Something that the legislature has talked about for many years too is through the implementation of new contracts or reauthorization of the existing contracts is what I mean, to set more stringent stipulations and standards on those communities for conservation.

And you can do that through your

contracting procedure with your member communities, and we strongly urge that you do that. I apologize for the phone ringing. We've got roll calls upstairs.

Another couple of points. The provisions of the Interbasin Transfer Act will require, as you know, the M W R A to demonstrate accuracy of the statements contained in the studies.

The Water Supply Commission feels that prior to choosing an alternative that the M W R A should reexamine the figures presented in the study in light of the comments received during your public hearings around the state. Until the M W R A is able to accurately and completely account for the amount of water being used, where it is all going, and how much will be needed, the consideration of major diversion in in our opinion is inappropriate.

We are very pleased to hear the statement from the Governor really showing how the M W R A should move, demonstrate supplies being used to their greatest use at this time

before new supplies sought.

And again, I really feel strongly that you have to, and you have not yet fullfilled your mandate under your Enabling legislation and effected pricing structures that require conservation.

As Representative Healy said, the statutes that we have put in place, since the legislature is the policy-making body in this State, primarily The Interbasin Transfer Act and the Water Management Act frame the constitutional framework for reviewing water needs in the future. And we urge you to look at those and the mandates and the structures of those laws as you consider your recommendations. Thank you very much.

(Applause).

REPRESENTATIVE HICKS: For the record, I'm Representative Steve Hicks representing three Middlesex towns, Wayland, Lincoln and Sudbury. Many people want to testify here. I just wanted to address three different questions just very briefly. First I just want

to give a general reaction to the Draft report and also mention again, as both our colleagues have, the political reality of the whole question of river diversion in this legislature and also specifically. And particularly since the Sudbury Proposal will effect the people that I represent very directly, I want to make a few comments on that proposal.

As far as our general reaction and reading the report, and I have read it top to bottom, it seems to me that the entire report is too heavily weighted toward diversion. Actually five of the nine proposals that are in there are basically talking about diversion of water from one basin to another.

And I think you should be very aware and I think the letter that Secretary Hoyte read at the beginning from the Governor makes it very clear where the Governor stands on this.

If you look over a period, not just something recent, over a long period more than a decade, the type of legislation that we have here, Interbasin Transfer Act, Water

Management Act, even the Enabling Act legislation for your Authority, it is very clear where the legislature stands as far as the whole question of river diversion and how we feel about the need to particularly pursue those conservation measures if that be the cheapest way for us to achieve the water that you need.

Going on to my third point, the Sudbury River proposal itself, there were a number of people here from the Sudbury Citizens Advisory Committee and they will speak to specific parts that we feel there is some major flaws in that study, not only the safe yield question but it's a little upsetting to go to the river in your district seeing the signs posted on the river you cannot eat the fish because the fish in the river are so contaminated with mercury, that the fish are not fit for human consumption. That's just one problem they will address.

I particularly wanted to address the question of costs. Depending on which of those studies that you look at, either the

Wallace Floyd studies or Parsone-Brinkerhoff Study Proposal for Sudbury, you're talking $20 to $30 million in either 1982 or 1983 dollars. When you add the inflation factor which is about 10 per cent in the last year, it begins to increase greatly.

And if the columnists that I read are accurate, here we're just beginning to enter a new inflationary cycle. So the cost of the water, of this diversion whichever, of course is going to increase dramatically because of capital costs of any of these river diversions because the treatment plants that are going to have to be built.

What you've got to consider is the cost per million gallons. And when you talk about cost per million gallons you're looking at yield. And so you have to look at what is going to be a safe yield on each of those proposals.

And particularly the Sudbury, I question how many days any such plant that is constructed out there is going to be able to operate from some of the guidelines that are laid

down by your own regulations as to downstream flow, operating constraints and other regulations.

Apparently, had there been a plant at the Sudbury Reservoir it would only have been able to operate one day last year and that gets to be very expensive water indeed.

Now, I wanted to respond to, just because it's been alluded to here, about any suggestions that this Sudbury proposal is not a diversion. If you will look at the rules and regulations that were drawn up after the Interbasin Transfer Bill went through the legislature, you will see there is a very specific reference to the whole question of the Sudbury proposal.

I spoke with the former chairman of the Natural Resources Commission in the House and I went over and had extensive discussions with him Emerson Chandler and others at the Water Resources Commission so that it was very specific what the legislative intent of that bill was because there was some questions raised then as

to whether this would in fact be a diversion or not.

And I think it's very clear from those regulations what the legislature's intent was as far as this proposal goes.

To conclude, I think until leaks are repaired all throughout the system, and unmetered water accounted for, until all conservation measures are adopted, and all local resources are utilized, there is not a ghost of a chance for a piece of legislation to divert a river that will go through this legislature.

And even then, the greatest resistance is not going to come from those of us in the legislature who may come from those areas. I think it's a going to come from legislators that are in the M W R A service areas because what it will mean for us is additional cost added to the rates for the users in those areas.

The fundamental question here has not been answered. And as Alexandra Dawson I think brought out that the case for established

need has not been made and that case is going to have to be made before we're going to see a river diversion take place, or see this go through politically this legislature. Thank you.

SENATOR CELLUCCI: I'm Senator Paul Cellucci from the Middlesex and Worcester District which includes several communities deeply concerned about potential plans to divert the Sudbury River and relieve the forecasted need for drinking water in Eastern Mass.

Through hearings, reports, studies and citizens comments there are many concerned about the impact that river diversion might have on their communities. Whether it's the Connecticut, Millers/Tully River, Plymouth Aquifer, the question remains: Do we need it. Do we need to tap into the rivers for water supply when there are doubts about what is happening with the current water supply.

The studies and hearing process that has gone into these efforts to solve a serious problem has to be commended. The MDC, Water Resources Authority, and Citizens Advisory

Committees, much thanks for their hard work, time and energy.

Now that we're at the hardest part of the process trying to decide what to do, we must be careful not to jump to an easier convenient solution to increase user water supply.

In my district the Sudbury River is troubled by contamination from the Nyanza Chemical plant in Ashland. Now we are concerned about the sludge that will be produced if the water treatment plant were built to treat water from a river diversion. The quality of human life and the environmental impact are serious concerns that must be addressed. Even if those concerns are properly addressed, it must not be taken for granted.

If river diversion is the answer to your problem, river diversion must be the last resort to the problem. We must first find unaccounted-for water the system uses, leak detection repair, along with conservation efforts. Efforts in that direction first are the

important steps.

To assures an efficient water supply system then we had better determine what our water needs look like. Thank you for letting me speak to you on what we all know is a vital issue that must be addressed.

MR. RALPH: Representative McGovern I believe is here. Thank you very much.

SENATOR MCGOVERN: Thank you for taking me out of turn here. I wanted to express my support for the statements that were made here today and to do it in front of you personally. I want to echo what they have said relative to the priority that I think ought to be given and I'm sure it will be given to the conservation efforts within the water system of the Metropolitan District Commission area.

I think even any discussion of diversion whether or not the sentence ends with "last resort" is inappropriate at this time. Given in the context of the public perception of the mismanagement of the present system, at a future date, years from now if the situation

changes maybe a discussion could be had about a diversion. But at this time I think it's entirely inappropriate and I want to echo those statements that were made by my colleagues that proceeded me. Thank you very much.

REPRESENTATIVE DURAN: For the record I'm Representative Duran from Marlboro, Southboro. The Sudbury Reservoir is right between both communities which I have the privilege of serving. I also want to echo the concerns expressed by my fellow legislators relative to diversion. I really feel it's premature to be talking about diversion at this point and it's a little bit upsetting the fact that there is so much emphasis in the report put on diversion.

Both the rivers and the reservoir cost issue is a real issue also here. You're talking about building a $22 million dollar water treatment plants for Sudbury Reservoir and those figures were given a few years ago. Cost obviously is going to escalate more as time goes by.

What you are talking about treating, not talking about treating or reactivating Sudbury Reservoir, you're talking cleaning and pumping it from the reservoir. Everybody in this room is aware that Reservoir 1 and 2 now have the problem from the Nyanza stream that runs into the reservoir which is obviously contaminated with mercury. That is also a concern that we have. Not only is mercury going to the Sudbury River, but it is a potential threat to our drinking water supply if in fact Reservoir 1 and 2 become alternative sources for the Sudbury Reservoir.

Sudbury River obviously is another concern to 22 communities downstream from the Sudbury. The Reservoir will be effected because of the drawdown of the Sudbury Reservoir.

Six per cent of the land area within Sudbury Reservoir watershed area will be exposed causing many environmental and aesthetic problems in addition to the foul smell that many of us have seen in similar attempts to bring it down on an experimental basis.

My feeling, and I believe the feeling of many people in my community is a feeling that what we have to do, what I urge the Commission to do is to enter into a comprehensive leak repair and detection program, to be firm about water management policy that protects our local water supplies, reduce demands, and hopefully reduce the need to seek new communities to enter into this watershed management area, the Sudbury Reservoir, ultimately giving us an extra 20 million gallons a day as proposed.

My feeling and the feeling of many others is that this same type of benefit can be realized by an aggressive policy which I just outlined. I hope that the Committee will work, the Special Commission on Water Supply established here in the legislature to that end. Thank you very much.

(Applause).

MR. RALPH: Any other members of the legislature here.

MR. SHEEHAN: Thank you for letting

me speak out of turn. For the record, my name is John Sheehan on behalf of the Representative from the City of Lawrence. I'm here to register strongest possible opposition to proposed Interbasin Transfer and river diversion. So long as the greater Boston area leaky pipes are not fixed and the problem of the loss of millions of gallons of water is not addressed any and all river diversion should be put on hold. And representative Clunin wants nobody to vote for any such proposal, that he will do everything possible and in his power to stop such a proposal. Thank you very much.

MR. RALPH: At this time I don't know any fair and equitable procedure for getting everybody to testify quickly. Somehow if we could all line up behind each other.

(Audience stands).

MR. RALPH: Half the people that applauded didn't stand up. If I could just ask everybody that wants to testify, because there are so many and we have time constraints, try to keep your testimony to two to three minutes and

again for the sake of our stenographer give your name and spell the last name. It would be greatly appreciated.

MS. FROME: My name is Michele Frome, F R O M E, and I represent the Connecticut River Water Shed Council. Last week I sat along with many of you in the auditorium with the Authority at Northampton High School and along with over 800 people who came to share their views with you. One message came through loud and clear at that hearing. Don't divert the Connecticut River. If you try to, the people of Western Massachusetts and the State of Connecticut are prepared to fight you in court.

I think a second message was held equally strongly by those of us in Northampton. Don't divert any river, large or small, until all the other avenues for water supply management and demand reduction have been exhausted.

The position of the Connecticut River Watershed Council is that we oppose any out-of-basin transfer to augment water supplies of the Water Resources Authority. We oppose

these out-of-basin transfers for three reasons. First, they'll hurt the rivers and the water sheds. Second, they're not necessary. And third, they're not in your best interests.

In the comments we delivered to you in Northampton we outlined some of the most significant environmental damages that could occur as a result of the diversion. I won't go through those here. Let me just point out that they were not adequately studied in the Environmental Impact Report. So if you choose to go down the diversion route be prepared for further study.

My second point, diversions are not necessary. Your consultant's reports failed to give you a realistic estimate of water needs for two reasons. First, two other estimates, the populations and the communities to be serviced. And second, it underestimates the potential for demand reduction.

We're convinced that you can obtain enough water to meet your water needs through the year 2020 without diverting any

rivers if alternative steps are taken and further time. But let me just repeat them again. Leak detection and repair, protection and use of local water supplies in Eastern Massachusetts, promotion of water conservation by businesses, households and industries, management of watersheds around the Quabbin and Wachusett, and development of an effective drought management plan.

My final point is that out-of-basin river diversions are not in your best interests. This is true for two reasons. First, it's not safe. Second, it's costly. The four rivers studied, the Connecticut, the Millers and Tully, Merrimack, and Sudbury, are all Class B water. This means they are not a drinking water quality. In other words, you're putting dirty water into clean water.

Your consultants' studies assumed that water treatment would not be necessary. This is not a reasonable assumption to make. When the cost of treatments are added you will find this to be much more costly alternatives.

And my point is that it's not safe. You're inviting risks when you divert Class B water into Class A water. All these rivers receive industrial and municipal waste.

The citizens of Western Massachusetts agree that the diversion of these rivers is not in anyone's best interests. That's why three counties and 46 cities and towns have passed official resolutions stating their opposition to river diversion and their support for the alternatives dimension. We'll be forwarding these resolutions and letters to you.

In conclusion, I hope you'll agree that river diversions are neither necessary nor desirable and I look forward to you rejecting these altenatives. Thank you very much for this opportunity.

REPRESENTATIVE MANO: I'm Representative Dave Mano, Framingham community. I spent 14 years in the western part of the State and they are very sensitive to what's going on with the Connecticut River. All I can do is simply echo what I've been hearing from the

people most familiar with the program, and that's the people who live there, not in the eastern part of the state.

I represent a community fast growing. It's going to need increasing water supplies. So I ask you stand on the issue. It's very clear to me. Look at all the data, some more realistic alternatives other than diversion. I ask you to not only put it on the bottom of the list, but take it off the list as one of your alternatives. Thank you for your time.

MS. RADCLIFFE: My name is Gail Radcliffe and I'm with the Clean Water Action Committee. We're a state-wide environmental organization with offices in both the west and the east of the state and work on water protection and water management issues.

I'm going to talk briefly about what the Clean Water Action has done, why we have done it, and what the public reaction has been. I spoke before you at the Connecticut River hearings out in the western part of the State.

But we're not opposed just to diversion of the Connecticut River, but extensive in that state opposed to all the diversions.

And we are opposed for the four reasons that you've heard most commonly here today. It isn't necessary. You can get enough water if you fix the leaks or conserve and you detect and manage the watersheds. It's extremely expensive, more expensive to divert any of the rivers that effect conservation.

It's a potential health hazard because none of the rivers are drinkable. All have sewage toxins. In the case of the Connecticut River there's radioactive waste from the nuclear power plant and you can imagine the scenario if Connecticut went straight to the Quabbin and you had a major spill.

Fourthly, diversion would do severe environmental harm. If you take a large amount of water out of a river that is polluted and divert you make it much more polluted, kill the fish and ultimately the Connecticut River would be Quabbin on the study itself.

So what we did was to set up a state-wide coalition of groups from the areas that were effected by diversion. So that's the four river areas and also Plymouth area. And last month we held a legislative breakfast and sponsored by nine groups and these were legislators from the water donor watersheds of five areas.

Forty-seven major state aides attended. They agreed to work out a resolution which would oppose all diversion, not just single diversions, but all of them.

One of the other things that we have done is to do a public outreach education campaign in your M W R A communities. We have and will in the future both in the east and western part of the State. And I would like a few minutes to tell you in more detail what the reaction of the public has been in the MWRA communities.

So far we have worked only in two towns. We have been in towns, MWRA towns, worked in Belmont and Lexington, and only worked for

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five weeks. So that's a brief period of time for us. The results of that are Belmont has passed a resolution opposing all the diversions and recommend a leak repair conservation and better watershed management and the Belmont Selectman and Chairman of that Board is here today to present that resolution to you.

Lexington, which is the other town has one under consideration and we are confident they will in fact pass that. We plan to start to work in other M W R A towns in July, doing it the same way, educating people on the issue.

And we will continue doing that until you have made your decision on the issue. We really hope you make a wise decision because we don't see this only as a water supply for eastern Massachusetts. We see it as symptomatic of a problem in this state and in the country as a whole. We really need to plan our water and protect our water before it is too late. Thank you.

(Applause).

MS. SHAUGHNESSY: My name is Ann

Shaughnessy. I also work for the Clean Water Action Project out of our Boston office. As Gail mentioned I'm the field manager working with the staff and we work in communities such as Belmont and Lexington to provide education and outreach.

I'm going to briefly tell you the kind of responses we got from community members in this these two towns as well as some of the things that these people have done since that time to work for the position that they've taken.

One of the first responses that I remember receiving was people are very proud of the quality of water that the area in eastern Massachusetts gets and a very proud sign that was demonstrated in the creation of the Quabbin Reservoir. I spoke to a man who was about 40 years old when the Quabbin Reservoir was constructed and he has written or read numerous books about the Quabbin Reservoir, takes his family out on picnics, and the family to the Quabbin when they come to visit.

And he was appalled to think that

all the years of watersheds protection and management that has kept this reservoir so clean would be negated by introducing polluted river such as the Connecticut into the Reservoir. And there is also much concern in both communities about the health impacts that any diversion of the rivers proposed would have on them, the quality of the Quabbin Reservoir and Wachusett Reservoir as it mixes the class A as opposed to the river water that would be mixed with this either directly into the Quabbin or into the system in general.

And people could not understand, especially being fully aware what Quabbin is like, that it would become like Woburn, Holbrook, numerous others that have contaminated drinking water supplies, why anyone would degrade the quality of water they're getting now by introducing lower quality river water.

The thirdmost, well, the third comment that was made very often was anger about the amount it would costs the repairs to have any of these diversion projects completed, evidently

in light of the fact that they are paying right now for billions of gallons of water each day to be lost through leaks in the system.

And they're very much concerned about the wastefulness of the present system and a potential cost to them that is not for something as admirable as building a sewage treatment plan to improve the quality of Boston Harbor, but to introduce lower quality water to a drinking water system that doesn't clearly need it until the leaks have been repaired.

And these concerns are representing not only comments that people make to us when we're talking to them, but also in actions that they take. 3,045 people signed a petition that we had expressing their opposition to diverting any rivers as a means of increasing water supply until everything had been done to do leak detection and repair and demand management.

335 people took time during that evening when we were there to sit down and write a letter to the Water Resources Authority or to their State legislators specifying their

concern. And 247 people planned to attend this hearing and organize into a phone tree to be notified about the time and date.

And that was just, like I mentioned, in five weeks talking to people in the evening. And I think we would see many of those people here today if the meeting had been in the evening. Unfortunately most of the people have to work in the day and were unable to attend an afternoon hearing.

MR. RALPH: Your three minutes is up.

MS. SHAUGHNESY: As Gail mentioned, we have only worked in these communities for five weeks and plan to return to M W R A communities and I'm certain that the responses will continue to be the same and it is becoming clear in eastern Massachusetts as well as in the donor regions people are not supportive of any plans to divert rivers and would encourage you to make sure that the leak detection and repair and demand management is the alternative that you choose. Thank you.

(Applause).

MS. CONKLIN: Elizabeth Conklin, I am Natural Resources Director and water specialist for the Massachusetts League of Woman Voters. The League has long worked for sound water management practices and interbasin transfer guidelines. Now the very same concerns bring the League here to recommend that the Massachusetts Water Resources Authority place diversion at the bottom of its list of techniques for augmenting the metropolitan water supply.

Although you may not be able to eliminate the eventual need for additional supplies, we urge you to minimize the need through careful maintenance and full utilization of local supplies; careful management of watershed areas to maximize water yield; conservative use as if we feared we were becoming water-poor; reuse of water whenever possible; careful system maintenance to avoid both leaks out and contamination in.

Let me simply say that we are delighted to hear your adoption of conservation

and demand management practices. We urge you to continue with this and to go farther with it. And as we have stated, it is our opinion that we would oppose diversion and accept as a last resort and we hope we won't have to get to that resort. We hope you will hold to that opinion on it.

MS. BERLIN: Hello, I'm Kathy Berlin of the Wayland Conservation Commission. I'm here today to present you with a petition signed by 767 people stating that we are opposed to the diversion of the Sudbury River, the Upper Sudbury Watershed Alternative, and support the demand management and user sources alternatives.

This petition was circulated for only one week, so I feel confident many more people are opposed to this diversion.

Now is the time for an overall plan for Massachusetts water management and planning. In Wayland we have a local water source that does not need treatment before it is consumed. Our wells are in the floodplain of the Sudbury River.

If you authorize the diversion the effects will include increasing the concentration of contaminants in the river. The flooding of the river is the time when the river cleanses itself. If you take what looks like excess, but what is in fact much needed water, you will be threatening our local water source. In terms of long range planning, it is much more advantageous to allow us to keep our local source and to activate other local sources instead of threatening ours.

The Sudbury River is already in danger from the Nyanza Chemical Site in Ashland. The fish are so highly toxic with mercury that they are deemed inedible. Due to this contamination and other pollutants, the water you are proposing to divert must be treated in a proposed water treatment plant in Southborough.

There is no place for the sludge produced by this plant. And although the Summary Report says the Upper Sudbury Watershed Alternative produces 20 million gallons a day, the plant will be built to hold 40 million

gallons a day and 40 million will be transferred from Framingham Reservoir 1 to Framingham Reservoir 3 to the Sudbury Reservoir. That will have an even greater effect on our river than has been calculated.

The calculations that have been done show a reduction in flow of 23 per cent. The Sudbury is hardly a fast-flowing river now. What effects will this have on the quality of the river water? The lowering of the level of the river will certainly disturb the nesting patterns of the river's wildlife. All of these things and more need to be seriously addressed.

The Draft Environmental Impact Report of the Sudbury River diversion was rejected and yet in the Summary Report statements from the D E I R printed as fact. Let's have an accurate statement of the effects of this proposal. We are sure if you do you will find the diversion of the Sudbury River an untenable proposition. Thank you.

(Applause).

MR. DEL PORTO: Thank you. I'm

David Del Porto and I'm president of Ecos, Inc. and here representing ECOS Inc. in Concord, a company specialized in demand management. We were qualified by the MDC in 1984 to submit our proposal to design and manage other programs, who at the expense of the government, purchase and install water conservation devices in approximately 500,000 homes, and a domestic device retrofit program in households in the MDC service area.

Second, in December 1984 the MDC selected ECOS Inc., and its subcontractors, Arthur D. Little, Inc., Choate, Hall & Stewart and Media Matrix Inc. as the best qualified to perform the Tasks outlined in the Request for Proposals, RFP, as best qualified to do that work. And we feel qualified to comment on the program.

For decades the Metropolitan District Commission has been seeking the means to expand the supply and water demand in its user communities. The most recent operating premise was that since 1969 the water use of the MDC

system was exceeding the safe yield of water sources, and supply augmentation was the least cost management approach.

Periodic reports by the MDC projected increasing long-term demand and provided plans and strategies for building inter-basin transfer pipelines and pump stations, new treatment plants, and a larger bureaucracy for the management of the additional infrastructure.

Today we have before us the most recent of these reports, the Summary Report of the Massachusetts Water Resources Water Supply Study. This report is consistent with the historical recommendations of its predecessor, the MDC, in that following a careful review of all options, supply augmentation appears to be the recommended course of action.

This approach finds a close parallel in the historical development of our nation's electric utilities. Investments in new supply in the power industry were rationalized by projecting increasing electrical demand and

warning of supply shortfalls. Concurrently, demand was induced by subsidizing the industry with general fund tax dollars which lowered the direct cost to the end-user and by providing deep discounts for large volume purchasers.

Fortunately the "Energy Crises" of the 1970s awakened the nation to a new form of management and the alternative was conservation, often kicking and screaming into a new world where Federal and state laws required utilities to make investments in conservation and provide various incentives for investigating alternative sources of energy.

Old policies were reversed when, much to the chagrin of the proponents of supply augmentation, energy demand rapidly declined. The decline continued until the demand for electricity fell within the "safe-yield" of existing sources of supply.

The deline in demand was not brought about by austerity and painful deprivation, but rather the discovery that the least cost strategy was to invest in efficiency.

We proved that the old adage, "A penny saved is a penny earned", applied equally as well to energy resources.

By investing in more efficient electrical devices we were actually purchasing cheap capacity. By investing in conservation we produce "negawatts" of capacity instead of "megawatts" of unnecessary stand-by power.

Put it another way, we displaced the power generation by purchasing and installing more efficient water and space heaters, air conditioners, insulation, refrigertors, cookstoves, lightbulbs, motors and pumps.

By investing in these improvements which involved no loss of performance or convenience, we solved the energy supply problems which beset our nation and concurrently saved ourselves billions of dollars as well. The investment in efficiency delivered the greatest whole-system benefit and proved to be the least cost alternative.

I submit that this nation's spectacular reduction in energy demand can be

duplicated by the Massachusetts Water Resources Authority and that the alternative to costly water supply augmentation is conservation.

It is my professional opinion that the demand management alterntive has understated the estimated savings from the proposed conservation program.

For example, a recent successful retrofit program completed in Orlando Florida in 1983 saved 25 per cent of the domestic demand by effecting a retrofit program virtually identical to the retrofit program proposed by MWRA. By using the the 152.4 mgd Metered Domestic Water use projections for year 2000 and reducing this projection by 25 per cent, we can predict a savings of 38.1 mgd.

In Table 5, page 36 of the Assessment of the Demand Management Alternative estimated the savings from an identical program to be only 19.4 mgd, a 49 per cent underestimate of just one component of the demand management alternative..

I submit that a 25 percent

reduction in net MWRA system water demand can be achieved by the year 2,000 by (1), increasing the level of effort in the education of the public as to the short-term, whole-system financial benefits an individual can realize by his using water more efficiently.

(2) Revising the State Plumbing Code to reduce maximum flush and flow to reflect the current state of the art in water using fixture values.

(3) Investing in the purchase and installation of Plumbing Code approvals of off-the-shelf technologies that have been successfully saving water in the Commonwealth for years.

And (4), Investing in, promoting, and providing incentives for installation and utilization of innovative and alternative methods of water reuse, recycle and wastewater treatment.

This 25 per cent efficiency factor will more than offset the projected shortfall in supply and allow the Commonwealth to live within

its means and safe yield of existing water resources. Thank you very much.

MS. GRAY: Barbara Gray, State representative, Framingham. In deference to the people that have come before you with excellent testimony I'm going to be very brief but very efficient as well. 36,000 people live in the center and north part of the Framingham that borders Sudbury. We know the Sudbury Reservoir, know in its value. It's more like a lake or river. If you tend to drain that river and divert it in any fashion whatsoever you will effect the wildlife and fish which is crucial to our area. I urge you never to divert the Sudbury. Thank you.

(Applause).

MR. SULLIVAN: John Sullivan Junior, Director of Engineering for the Boston Water and Sewer Commission. You'll recognize my initial comments are those given at two previous hearings but I would like to re-emphasize for your audience that Boston Water and Sewer Commission purchases over one third the total

water supplies to the community by the Massachusetts Water Resources Authority and therefore has a strong concern representing the people it serves and the M W R A ongoing long range water supply planning study.

The commission thanks MWRA and its immediate predecessor MDC for the work produced to date in the water supply study.

There are several areas in the Summary Report on which we want to comment. The Boston Metropolitan area needs to be assured of an adequate water supply for the future. The development of supplemental sources has been delayed too long. MWRA currently provides water for approximately 2.4 million people or 41 per cent of the populations of Massachusetts.

Of the nine alternatives discussed in the Summary Report the no action alternative which results in water sources and a statement of the adequate water resources is clearly unacceptable.

The Commission has had experience with some of the programs defined under demand

management alternatives. We are concerned with the projections of the water to be saved under domestic devices retrofit program and its associated costs. There has not been a large scale effort to conduct such a project in this manner.

While we concur it's a worthy experiment, we believe caution before results is advisable at this time. Current water purchases by the commission are 32 million gallons per day, lower than the 151 million gallons per day purchased in 1976 due to our aggressive leak detection repair program, meter replacement, and meter testing program and capital improvement program.

The Commission believes all of these actions are part of good municipal water system management. Since 1979 our leak detection efforts have resulted in the detection and repair of approximately 2400 hidden leaks. Under our meter replacement program over 39,000 residential meters have been replaced with approximately 6,000 additional replaced annually.

The Commission has instituted a program to annually test the 200 largest water meters to insure accuracy. The Commission is well underway with our capital improvement goal of relaying and relining 11 miles of pipes per year insuring by the year 2,000 no pipes in the system will be older than 100 years that have not been rehabilitated.

As an additional stimulus to promote demand management and conservation among our customers and in light of MWRA various legislative mandates, the Commission has implemented a progressive rate structure of ten increasing blocks in August of 1985. This structure means that the more water a customer uses the higher rate that customer pays. There has not been enough experience under this rate structure to comment on its overall effect on water demand.

As part of an ongoing water system facilities plan we are undertaking important efforts to enable us to fully understand and manage our system. These efforts include an

in-depth analysis for unaccounted for water including better definition of its components and an in-depth analysis of various uses of water within the City and among other customers.

These comments are presented to you to demonstrate the Commission's ongoing and future commitment to manage our water resources and allow each community to realize that they should take steps also planning its water resources and still have remaining an adequate supply of water for the future. This is essential.

It is our expectation that a detailed report identifying a combination of alternatives that meet the needs to the year 2020 will be forthcoming. We look forward to the opportunity to comment on the Draft E I R and preferred alternative selected by your Board. Thank you.

(Applause).

MS. ANDERSON: My name is Nancy Anderson. First I would like to compliment Secretary Hoyte and the Water Resources

Commission for being here. We are looking forward to having such a commission and we're excited about you and your relatively new responsibilities. You haven't had this a very long time, but we're most appreciative of what you're attempting to do.

Second I would like to compliment Ann Gannon, Alexandra Dawson and others. These people have worked to form the Citizens Advisory Committee of which I have been a member for some ten years or eight years, however long it has been, and have watched their efforts over these years.

I have never seen people on the Citizens Advisory Committee be more effective and responsive to the needs of citizens and the many many hours of consultants services that Ann donated to that committee from people from all over this state is really a commendable illustration of what people can do, and I would like you to know that.

I am here to talk about the impact of diversion on eastern Massachusetts. I don't

like diversions. I feel as though we're still existing as we did in the days of Rome. When we need more water we build a longer pipeline. And while we were, before we built that longer pipe line we destroyed the existing water supply that we had. And that's why we went out to build a longer pipe line.

We began in Boston with Jamaica Pond. It was a good clean pure water supply. The Ipswich Water Basin provides water to 15 to 22 cities and towns. I have over the last 15 years seen the destruction of that rich basin. It's sad to watch.

I've also watched The Mystic and Akajuno Rivers. And right at this moment the Saugus River system is suffering because of five acres of wetlands being filled that were behind Treasure Island. Now the Saugus River provides water supply for Lynn. And as we destroy these river systems, of course we're going to need to go further.

I've watched us contaminate the water supplies of Bedford. Drive down 125. I

watch Brockton fill its wetlands and destroy its water supply. Watched Randolph, watch all of these towns. Physically development is so exciting so they bring in the developers. The water supply disappears and then they want to go farther out to get more water.

Now, Massachusetts has 700 people per square mile. We're second only to Rhode Island, which I think has 768, Connecticut 455 people per square mile. They're going to need Connecticut River water.

I just spent a week in Ottowa at the International Union for Conservation and National Resources. I heard them talk about the droughts in Africa and India, things that can happen to us. And I think about what we're doing, we could bring together and think about this quite seriously.

If we had a Conservation Restrictions Program, zoning for the public health, safety and welfare. It's allowed only by the Constitution of the United States. We should be able to figure out some type of state zoning

where we, as this enlightened Commonwealth, would take these river systems and say this river system is an important water supply, the Ipwsich River system and you would get the whole support of the State. I know we could get it.

Then we zone the floodplains, wetlands and those areas important to the water supply. Have an aquifer, never dump, and that water supply stays clean, takes care of those people. Zone the Saugus River.

All of these ideas that we're having here today about conservation and flat rates and correcting the leaks, they're important. But they're not going to answer the ultimate problem which is that we're systematically destroying water supplies and heading west.

And I would urge you, and I know this is not something you think is part of your job, it may take some real creative thinking. But that's what I'm referring to here to you. Because I care a lot of about eastern Massachusetts and I know that one minute when you

divert that Connecticut River Eastern Massachusetts wetlands and floodplains and areas that will be saved because we're afraid they're going to lose their water supplies, but they're all going to disappear and then we're going to behold the trickle will become a flood.

The whole Connecticut River, suddenly people from Connecticut break the pipe when the drought comes. That's the way I feel. Thank you.

(Applause).

MS. FOZ: I am Adelle Foz. I'm representing MEPA. I ought to go in the thick of this study and I think I would like to amplify on some of the remarks very slightly with a different perspective than most of the speakers so far if I may.

I don't know if it's a good thing or bad thing, but our environmental review process tends to turn into an adversarial process and my observations on this project and a great many other regional resource projects is that they tend to make both proponents and opponents,

treat the findings basically on the basis if you agree with their political point of view, those are very good findings, and if they happen to be opposite to that point of view, they are unequivocally bad, badly done, should be redone, et cetera.

And so with all due respect to the political process it tends to reach into many of these decisions. I'm also curious as to what some of the consistent findings of the people who look into these projects were. I think there's some significance to that.

This particular topic of diversion and water supplies for the MDC and MWRA has been studied for many, many years. The two most recent started in the late 60s, the Corps of Engineers did a study and most recently the study we're talking about happened today and I keep wondering what are the notions, what are the constants that appear in that nearly 20 years of work.

And of four or 65 of which was offered for consideration, first of all is that

any growth eventually will require more water supply. The conservation, leak detection, watershed management clearly will help and should in my opinion generate something to be pursued with considerable vigor.

At the same time you may keep in mind things I've observed about cost effectiveness and the effort it takes to actually begin to recover water in that way. I have a feeling reading all those 20 years of studies that these measures help, but they won't be quite enough.

Second on the alternatives there are particularly seven topics of study from the Corps study. The recent one I know it's inconvenient for some people, but they have relatively few impacts because they have relatively few.

The third thing, probably something to be taken into account and at this point I'm sure you're aware of, is the Quabbin Reservoir System is really like a big flywheel. When it's full it could last for about a few

years, but like a flywheel under the stress of increasing demand and more supply, it would take a very, very long time to recover. And this is something that needs to be taken into account.

But because unfortunately major structural projects of any sort or any of the leak detection repair can take close to ten years to get into effect, so while one can in a sense depend on the final effect, it takes many years to be able to respond to the drastic situation.

And I keep asking myself is there a message in all these 20 years of study that keep finding essentially the same kinds of things and I'm very surprised personally further studies of these particular alternatives would reveal unexpected findings. But that's my opinion.

The other comment which I'll make quickly is after people have debated numerous pros and cons going through the legal thing, et cetera, and political debates to weigh their significance, I think there's a couple of things that need to be kept in mind.

First of all, there's a public

policy. The question here which is should the system, which is the first resort in this contamination, or not enough supply, and last resort for the same kinds of thing for slightly over half the population of this state, should that system have some margin of water supply or no margin. What size should that supply be. I think that question should be answered.

The other observation I have which is that eventually some other additional source of supply other than conservation, leak detection et cetera, is necessary, to have the lead time, the use has to be monitored.

And the other thing that I would suggest, an alternative which can be built in increments is something to be considered carefully. In other words, you may not need to spend money to build 601 gallons supplies. It would be sad to spend that much money if you only needed a half or third of that. So I think that's my main comment. Thank you.

MS. O'DONNELL: My name is Arlene O'Donnell, Director of Environmental Affairs of

the Audubon Society wearing a couple different hats this afternoon. I am a gubenatorial appointee to Mass. Water Resources Advisory Committee representing Boston Harbor. In that capacity I'm chairman of the Water Supply Subcommittee. Also one of the 35 voluntary members of WSCAC, Water Supply Citizens Advisory Committee, and presenting testimony today also on behalf of Dr. Bertrand, President of the Massachusetts Audubon Society who unfortunately could not be here this afternoon.

I will briefly attempt to reiterate a lot of the comments previously made. As many of you know, Massachusets Audubon has worked aggressively with the legislature over the last few years to enact some significant pieces of water resources legislation, the Interbasin Transfer Act, the Water Management Act, of course the Enabling Act, the legislation for the Authority.

While we believe that the selction of preferred alternatives for the study will signify the seriousness with which the Authority

accepts current water policy in Massachusetts as enunciated by these laws, the Massachusetts Audubon Society is concerned that the Water Supply Study was begun and seems to have been continued under obsolete assumptions developed prior to the passage of current law, water laws that are now out of date in Massachusetts.

The Authority should bring its study assumptions up to date and focus the remainder of the study and Draft E I R on a way to properly manage the existing system, promote aggressive water conservation, account for over 130 million gallons per day of unaccounted-for water and establish a data base to enable acurate and timely projections of future water need and appropriate actions to meet that need.

While we observe that the study does contain some useful information, we believe the study is seriously flawed. We believe that the study over-projects water needs by nearly 100 million gallons per day and that future demand if realized can be met in a most economically and environmentally sound manner through demand

management, and secondarily, through user sources and ecologically sound watershed management.

We believe that all major river and aquifer diversion should be dropped from consideration until the Authority establishes actual need, institutes a comprehensive demand management program, activates the users sources and watershed alternatives and water alternatives if necessary.

In accordance with Section 8(d) of the Enabling legislation, all contract users as well as potential future users should be notified immediately that the Authority can no longer be assumed available upon demand.

In addition, the Authority should cooperate with state agencies to encourage protection of water supplies, to avoid dependence on its system, future dependence on its system.

The Massachusetts Audubon Society is concerned that the Authority has not perhaps seriously considered all the comments that have been offered by WSCAC as well as Quabbin Watershed Advisory Committee formed by the

Enabling legislation.

This group has the responsibility for reviewing and recommending to the MDC Watershed Management Division a proper watershed management plan. This committee has identified serious errors in the selection of indicator species and the evaluation of impacts on wildlife populations in the MWRA's report. Water quality impacts were inadequately assessed.

The MWRA's watershed management alternative should be developed in consultation with QWAC and the MDC Watershed Management DIvision, which has approval authority over all activities within the watersheds.

Massachusetts Audubon has been involved in the bald eagle re-introduction and the nesting and the loon nesting projects at the Quabbin, and is deeply concerned about the long-term viability of wildlife and fisheries resources there.

Dr. Bertrand is most seriously concerned and personally involved in the Sudbury River diversion. He notes that while the need

for more water is not demonstrated in the Authority district, the need for water is demonstrated in the Sudbury River Valley and namely Bedford is a good example of that.

He notes that the scope of the Sudbury Study requested an analysis of the impacts of the Sudbury River diversion. And the classification of the Sudbury as a scenic river apparently has not been addressed.

He also notes that over the past decade the Sudbury River has undergone a recuperative period in terms of its wildlife ecology and notes the environmental impacts at Great Meadows and the need for some wetlands mapping that apparently was required, but has not been done for the area, nor has an assessment of the water table levels in the area been done as required in the full scope of the study. Dr. Bertrand's comments for the record.

Briefly I'll summarize my comments on behalf of WSCAC and the Advisory Board, concerns raised by WSCAC and also concerns raised by the Advisory Board recommending user

comunities realize that water conservation is the most economically sound alternative. For long-range water supply planning expansion of the water system results in increased flows and pollution in Boston Harbor and increased rates.

Both the Authority Committees and WSCAC believes procedures should be promoted by The Authority as a way to avoid future dependence on their system. The Advisory Board of March 16 voted a resolution that I think demonstrates this. The Advisory Board states that the MWRA advisory Board Senate, Ways and Means consider further appropriations for the DEQE aquifer land acquisition program to fund projects, including user sources as identified in the MWRA long-range water supply study.

That agency by the way was not made by the Senate Ways and Means and we hope you will all support further appropriations for that project which is very important for the protection of local water supplies.

Very quickly, other examples of agreements, WSCAC and the Advisory Board conclude

that the long-range water supply study has overestimated future water needs, underestimated the potential for water savings through demand management. The chair noted Boston has had a very successful water conservation program.

Boston was not considered in the survey that was done but the study estimated water savings in the district and we think that that was a serious oversight. The Authority needs to establish an accurate basline of water need that was stated previously, unaccounted-for water, aggressive demand management.

And finally a pet peeve of mine I keep bringing up, and not yet received an answer to, discrepencies between the population projections that were used to project future water needs versus future sewage capacity needs.

I don't think this has been brought to any of your personal attentions, but in the water supply study a 12 per cent population growth was used, and in the study that was done to project future sewage flows, a flat population growth was presumed. It appears a

stable population growth at this time.

So there's 12 percent difference in projected growth that we think is a very serious discrepancy and should somehow be rectified. Otherwise these two studies will be going in entirely opposite directions. Thank you.

MS. MOTTS: I'm Donna Motts of WSCAC and I'm former Vice Chairman of the League of Woman Voters of Massachusetts. As Representative to WSCAC I would like to focus my attention today on the user sources for local sources part of the study. I feel that it is this section of the report that's lacking in serious effort in the study.

User sources are those local supplies that are groundwater for service water supplies in towns that use MWRA water, full or partial users. And they can also be through water and towns that are potential users of the system. Local supplies provides redundancy and diversity to the system which is now essentially a single source of the Quabbin Reservoir with

Wachusett Reservoir and what some have called a single thread delivery system.

The diversion in the Connecticut River or the Millers River to the Quabbin Reservoir would not answer the concerns about the dependency on the Quabbin Reservoir to supply 2 million people with water. Local sources or user sources would provide a needed safety net to the system. They would not only provide diversity of location but also diversity in types of water sources that could be used. In other words, groundwater supplies as well as service water supplies.

Advantages to user sources can be that there could be less opportunity to need. They can they need less lead time to be put on-line than the major augmentation through diversion.

User sources also have the means to mitigate drought. Since groundwater is not lost through evaporation, local sources may have different precipitation patterns and different ground responses than the Quabbin Reservoir.

In the study the consultants demand projections assumes the need for MWRA to replace contaminated water of the users and potential users.

What has not been taken into account fully is the contamination can be treated. Doctor Colburn of Massachusetts Audubon Society estimates that 4 million gallons a day could be brought on-line if treated for contamination or per quality. This water would come from towns that are now using 45 million gallons a day from the MWRA. Some of these wells only need treatments for removal of contaminants, others of maganese and iron, which can be treated. Doctor Colburn's conclusion is that treating water supplies on the average may be cost-effective when compared with the new MWRA water rates.

Furthermore, geologists find that where contaminated wells are in a shell aquifer that is underlined by an all-confining bed, the deeper aquifer may in fact reveal abundant water of good quality. The use of artificial recharge

may also enhance not only the amount of water but the quality of groundwater supplies.

Under the old policies of the MDC some communities found it more expedient and cheaper to hook into an MDC system rather than treat their own water supplies. Drinking water supplies were also abandoned because of minimum purchase requirements by the MDC.

What I'm saying here is that treating and taking abandoned user water sources could meet a significant part of the MWRA demand at a reasonable cost.

Steps also need to be taken to protect the existing water supplies of partial users and potential users. For example, the City of Fitchburg is planning to build an Industrial Park on the watershed that drains into the town reservoir, a local water supply for the City of Leominster.

Not only is the town water reservoir stressed by the Industrial Park, but also because of a new interchange off Route 2, which is in close proximity to the reservoir, the

Cambridge Reservoir is stressed by drainage from Route 128. The City of Burlington has to purchase water that came out of MWRA because of similar problems in development. And so goes the scenario throughout the State.

There's a need for State water policy to protect the water resources against competing uses and trade-offs in communities.

The MWRA should press for water as first priority since water is a valuable resource and there's a need to promote more funding grants and low interest loans for protection of local supplies so that towns can purchase reconstructions on critical aquifer recharge areas, watershed lands, and so they can restore abandoned water supplies where economically feasible.

Before the M W R A moves to new water sources, sources in remote areas, sources closer to the service district should be fully explored. In most cases the amount of groundwater potential is unknown only because of incoming flow studies.

In light of the passage of new legislation we contend that user sources or local sources need to be re-evaluated as an important primary alternative. Thank you.

MR. LARKIN: My name is John Larkin. I'm an environmentalist and I have been for 20 years. And I'm working currently around the Sudbury River. I've come here today to bring to your minds most importantly Nyanza. Nyanza in Ashland is one of the top ten hazardous waste sites in the United States of America.

Also on Super Fund of E P A Nyanza has leaked its waste into the Sudbury River for 60-odd years. During the last nine years since the E P A or the DEQE has taken over the study, the Nyanza site has reached approximately 4500 to 5,000 pounds of mercury into the River.

The Nyanza problem is now underneath the scope of study by the E P A and DEQE and MEPA. You should be concerned if you want to take any water from the Sudbury River now or in the future, there's an estimate in your report, the Parsone-Brinkerhoff Report done by

the MDC of approximately 800,000 to 100,000 pounds of mercury in the sediment of the Sudbury River taken as far down as Fairhaver Bay in Lincoln and that mercury is in the sediment as far as that. It is going to the Assabet River, then I believe it's the Merrimack and perhaps reaches the ocean.

We have an extremely bad problem with the Nyanza site in Ashland. You cannot make a distinction between the Nyanza super fund site, Nyanza site, and the sediment in the Sudbury River. The sediment in the Sudbury River is highly contaminated with mercury. You also have the problem of allowing people to discharge directly industrial waste into the Sudbury River, and sewage waste into the Sudbury River. The Sudbury River is probably one in the worst states it could possibly be.

You don't see it in the water column because mercury is a heavy metal and it takes a lot of that to get into the water column. The water you wish to draw from, fortunately, you'd probably be drawing it farther

away from the Nyanza site. Some people will be affected down river from the Nyanza site.

If you take and change that river, the depth, quality, pH, total dissolved, oxygen, you're going to need several studies of that river that cannot be determined at this date as to what extent that we can determine how we move that mercury, what the extent of that mercury is in the future, how long it's going to be there.

We know it's gone into the food chain and it has gone into the food chain according to your reports. And I'm quoting the Parsone-Brinkerhoff report. Some of the Massachusetts Fish and Wildlife studies report 12 parts per million Mercury.

One small perch, approximately one half the content in that perch was the amount in the fish similar to in Minamanga, Japan where it caused instant death. We're talking 80,000 to 100,000 pounds of mercury where it only takes a small part per million to cause fetal damage in a fetus.

You have to understand the

sediment in that river should be determined and classified as a hazardous waste need site, and you cannot make a distinction between it and Nyanza. You cannot. Nyanza runs into that River. They're behind it and as far down as Fairhaver Bay in Lincoln. They're in the food chain with biomethylene and it gets into the food chain. Humans have been eating that fish for nine years down river and it has been polluted for nine years. The fish contain mercury. Warning Signs have just been posted this last week in Wayland to tell people not to eat that fish.

Ecological damages to that river is staggering. It is unbelieveable. The amount of poisons and toxins and the type of poison in there, methyl mercury, one of the worst toxins known to mankind.

I can't insist any greater than what I'm doing right now that you do not consider the Sudbury River for any change whatsoever now and in the future and that you throw the weight of this Board behind the E P A and MEPA efforts

and the DEQE efforts to study the scope of this problem.

They don't quite realize the scope of this problem yet, and I'm sure that they'll admit that to you. And I think that you should if you're going to consider the Sudbury River as a good clean water source in the future you should do that. Throw the weight of this Board and all efforts into cleaning that river up.

Yes, it's a scenic river. It's a beautiful river and it should be classified as scenic. But unfortunately it's also a hazardous waste site. I don't have any more to add than that. I emphasize it in the lengthy report and interpretation of Parsone-Brinkerhoff and supply that to your organization.

But many Town Boards, Board of Health, ecologists, environmentalist are very concerned about that project. It is in the food chain, up in the food chain. Signs have been posted stopping ultimate consumer however it's going to remain in the food chain until studied extensively and finally removed. God willing, we

find a way to get it out. Thank you.

(Applause).

REPRESENTATIVE POLUMBO: Good afternoon, I am Representative Thomas Polumbo, Second Essex District representing six communities and a portion of the City of Haverhill. I'm here to voice my opposition to any planning to divert the Merrimack River to service the MDC or greater Boston district.

I join with many environmentalists and stand clearly behind the Merrimack River Watershed Council in that we believe as a general principle that before we discuss in depth the issue of water diversion we should look more closely and more acutely at the issue involving water conservation measures within the greater Boston area and greater MDC district.

This issue has been discussed far more articulately than I will today by many of my colleagues, many environmentalists, some of whom I see here with me in joining here today so I don't intend to go into any greater length or any greater depth on the subject.

Suffice it to say that generally I would be opposed to the issue of water diversion. I am not obviously opposed to the issue of providing potable water to all communities and cities throughout the state.

But I think as the first step we need to concentrate all our efforts to look more closely at that issue on water conservation measures, and that issue that involves perhaps making corrective changes to our greater Boston greater MDC infrastructure to perhaps accommodate the future needs of the Greater Boston and Greater MDC district within the present scope of supply and not to have to look towards diverting water from various and sundry other watersheds to meet that need.

With that I'd like to thank you very much for your patience and I commend the efforts of this particular Board, and I know it's been long and trying. I guess this is the third hearing which you've gone through and I thank you for listening to me and thank those who are waiting to speak.

MR. KAUFMAN: My name is Jay Kaufman. I'm Executive Director for the Mass. Marine Study Consortium, member of the MWRA Waterfront Advisory and also from Arlington.

For the past two hours while I've been attempting to stand here and defend the authors of the report, in part support, and I think in part a sense of compassion, unfortunately I can't do that.

The document is beautifully presented. It's brilliantly written especially for something as technical as it is. And conceptually it's very flawed, seriously flawed.

What I'd like to do is spend my few minutes examining what I consider some of the unspoken and dangerous assumptions underlying the report. First something is what I call the Aquatorial Imperative. As I understand it, and implicit in the report is increasing demand is normal, acceptable and immutable.

We have the right to more water and we have the right to expect it to be there. More, more, more.

How different the studies equations and recommendations would have been if we simply said no. The cost of more water, economic, social political and environmental cost to us and future generations are simply too high. This is not even considered. It is simply assumed that it is our manifest destiny to draw more and more water from the well, the aquatorial imperative.

The second assumption is what I call the Quabbin equation. Quabbin has been there to some citizens of Massachusetts or at least some of the citizens of Massachusetts for approximately 40 years. This study took 40 years as its windows, looked 40 years into the future of why not 10, 20, 60. What are the lessons of the Quabbin experience. Precious little evidence that we've learned from that experience.

We seem ready to repeat without critical evaluation. Repeating the past is a far cry from learning from it. It's like trying to drive your car with two hands on the rear window. The Quabbin equation is the bigger is

better assumption.

Before we can really understand the alternatives presented to us in the study we need to ask a fundamental question. What is the cost of this to this society in relying on big projects. The implicit assumption is if you have a local problem, you have take it to a regional authority. For a regional shortage they'll bail you out.

The danger of this assumption, Not so much it wouldn't work. It has and probably will again. What happens in 2020? By then we have lived fourscore years. So you go see someone up there, assuming you're there, take care of us. Cost development and local responsibilities, rather than merely providing water for us. MWRA providing the carrots and sticks to individual citizens.

Have households, buildings, businesses, towns and cities take care to be socially responsible, to not rely on someone else. Once you allow something other than more and more and more and bigger and bigger and

bigger, you can then begin to ask some interesting questions, many of which have been asked here today or suggested today.

I'll spare you until you get my written comments list. Once these assumptions and other assumptions like them, and these unasked questions have been answered, then and only then is the study you have before you a useful document. It's only in the context of that broad perspective that it is useful.

As it stands it is seductively attractive, but dangerously so. As it stands, it is an apparently solid document built on the quicksand of social, philosophical, economic and political assumptions.

George Billings, an 18th century Massachusetts humorist said, "It ain't what a man don't know that makes him a fool, but what he things is so that ain't so." Thank you.

(Applause).

MR. BIOTTI: My name is Joe Biotti, Executive Secretary of the Budget on the Advisory Board to the Massachusetts Water Resources

Authority and I'm pleased to be here today to talk about the Long-range Water Supply Study on behalf of the Advisory Board. The same legislature that created the Authority created the Advisory Board. It has representatives from across the State.

As Executive Secretary to the Advisory Board I head up a small professional staff. Advisory Board has been seriously considering the Authority's water supply study for approximately a year, both on the staff level and through the Advisory Board Operations Committee and Water Subcommittees.

Beyond these Committees the Full Advisory Board has become aware of issues surrounding water supply through three separate and lengthy presentations given by my staff and four advisory Board meetings.

Generally speaking I think the Advisory Board is well-informed on the relevant issues. The Advisory Board Water Subcommittee has drafted comments in conjunction with my staff and these are currently being reviewed by the

Operations Committee and the Executive Committee who will put to full vote of the Advisory Board at our regular meeting on June 18.

Those comments are not yet available, but the Advisory Board has requested that I come before this body and offer some preliminary indications on the user communities feelings on some of these issues.

First, in general comments. Although it's a comprehensive and thorough document in many ways the water supply study also reveals several areas of uncertainty that warrant further expression. Among these were included the need to know the necessary total water use from all supplies in the planning area accurate, accounting for water flows on reservoirs in the community, the magnitude of the water contamination threat and the potential contribution of user sources.

This information needs to be gathered with the M W R A to conduct a thorough evaluation of all alternatives. The Advisory Board is not suggesting that a new study be

undertaken even or that MWRA delay certain decisions until more data is checked. The study provided enough material for substantial comments and action at this time.

The Advisory Board feels it is not too early for the MWRA to begin making decisions and policies which will in effect define its future water needs, nor is it premature to reduce demand implementation or protection of user sources.

Some specific recommendations follow -- and again these are somewhat preliminary and that the full Board has not as well voted on them.

No. 1, the MWRA should delay selecting any major augmentational alternative until water needs are more precisely determined in practical measures to conserve water and develop the sources that have been implemented.

Number 2, the MWRA should select demand user watershed management as preferred alternatives. These alternatives are consistent with the legislative directives of the Interbasin

Transfer Act and represent the potential to represent the water needs of the area for potentially lengthy periods of time.

Also note that the Advisory Board over the course of the last month have conducted interviews in some of communities that have identified user sources. I'll try to get more information on the specifics not compiled in the study and when we compile that information we'll share it with the Authority.

Number 3, Improve management of existing supplies should be a shared goal and action plans to confront these issues should be formulated to deal with unaccounted for water, the potential for contamination, and the need for accuracy in water flow use information.

Number 4, the potential additional savings in water conservation measures in the non-domestic sector should be incorporated with the goals of demand management program. Large amounts of water could be saved on the industrial side that are not included in some of the projections.

Number 5, new incentives should be built into the rate structure to reward communities which achieve results in the demand management mandated by state legislation. The Advisory Board is involved in some of the Authority's thoughts on changing the rate structure and welcomes continuation of those tasks.

Number 6, when renegotiating the service contracts MWRA should include provisions which would encourage maximum community efforts to conserve water and protect and develop water sources.

In addition, it is suggested in the future all communities that receive MWRA water should pay prevailing rates.

Number 7, New user policy. Communities seeking to enter the water service system should be advised both by the Advisory Board and Authority and share responsibility in the process of permitting new members to the system. Clear policy should be developed in the near term to inform potential users in advance

about criteria and requirements.

The policy should also include strong incentives to alternatives sources before turning to the MWRA system. The cost of reactivating a contaminated source if technically feasible should not be considered sufficient to not consider doing it.

Number 8, a plan should be outlined for specifying the procedures for surveying, financing, developing and operating user sources. Comunities should be involved in all phases of that process. Generally it is agreed that any development of user source should be operated by the community or possibly by a private company.

A program aimed at developing user sources should be developed by a level of MWRA funding which is sufficient so that a local community will not dismiss the idea of having those sources primarily on a financial rationale.

In cases where the MWRA is intent about developing those sources it should make

this known to the member communities as soon as possible a plan promulgated so communities are actively involved with that process.

Number 9, the domestic device retrofit component of the demand management should be studied in a pilot program, but the full implementation should not be made at this time.

Finally, Number 10, to more adequately evaluate all potential future water supplies, water quality information as current as possible. New data should be gathered and predictions of changes in water quality should be made and the capability of water pumping or organic chemicals re-evaluated.

Again, I thank you for this opportunity to testify and I trust the Authority will inform the Advisory Board with full comments when approved later in writing.

CHAIRMAN RALPH: Were those recommendations?

MR. BIOTTO: Staff recommendations to the Board or Committee recommendations to the

Board. The recommendations I have read are based primarily on policy papers voiced by the full Advisory Board. However the actual language of these recommendations in current form has not yet gone to the full Advisory Board. Recommendations as written were prepared by a group of both staff members and members of the Advisory Board.

CHAIRMAN RALPH: Thank you.

MR. MORGAN: My name is Allen H. Morgan. I am the Executive Director of the Sudbury Valley Trustees, a privately supported conservation organization of 1400 members formed in 1953 to protect the Sudbury River. I will not read my remarks as I have left a set of them with you and because it would be highly repetitive.

I wanted to make several points. The Wayland Board of Selectmen asked me to record their unanimous opposition to diversion of the Sudbury River. You have also also heard many times that Sudbury can provide you with a very modest amount of water, poor quality at very high costs.

Today I brought a copy of the sign

warning against eating the fish. You're given it to see. I had to take it back and put it on the tree. It's written in Cambodian as well as Spanish and English. The river is in bad shape.

I also am reminded of a prediction that was made in 1980, and I think this is a fair parallel for this discussion. In 1980 you calculated that the Public Service Company of New Hampshire were to spend the estimated cost of building Seabrook plant in giving energy efficient appliances it would save more electricity than the Seabrook plant will ever generate.

The moral is public service companies are in the business of producing electricity, not saving it.

Finally I want to point out six months I documented to this Authority that one of your customers in Sudbury Valley has a field of 106 gallons a day. Two points I should make. They don't use it. It's cheaper to buy water from you people. Secondly, it's about to be destroyed, actively marketed, and it's being

removed and paved shortly.

In view of the remarks about what you're doing about it, I really wish you to get cracking on that one because it's an option that will not be in force very much longer. Thank you very much.

(Applause).

MR. LENOX: Good afternoon, I'm John Lenox, Emergency Director for the Town of Plymouth to state for Plymouth our opposition to the Plymouth aquifer for the reasons very well stated in the consultant's report, and therefore I certainly won't take the time to repeat the economic and environmental impacts that we were concerned about. Commissioner Geary on behalf of the MDC has already discounted this particular alternative. And based primarily upon the results of this report I trust the Authority will also reach that same conclusion.

In summary we ask that the Authority agree with the MDC in their findings that this alternative is both impractical and dangerous and we ask you to discount it from

discussion. Thank you very much.

MR. STAPLES: My name Is Paul Staples and it's pretty hard to say anything new after this long line. I've been waiting long enough so I'll say it anyway.

No. 1, the Massachusetts Water Resources Authority should be renamed The Metropolitan Water Resources Authority. The present name implies to the public in reading and pronouncement that state-wide planning has taken place and that a duly constituted Authority has decided on a best action on behalf of the entire population of the Commonwealth.

Number 2, before spending all of the time and money on this present report (indicating), the question of whether greater Boston should be encouraged to grow rather than some other deserving place in the Commonwealth which under-utilizes the natural resources, and housing infrastructures and transportation facilities should be addressed.

Number 3, the financial community, whoever they are, needs to face the issue of a

no-growth policy at some point in time. Why not now instead of in the year 2020? This group has not, at least publicly, responded to the request of four Merrimack River cities to consider growth-capping in greater Boston. Why?

Number 5, Since water treatment seems to be a part of most of the reasonable options, why was the Charles River not looked at as a source of water.

Number 6, projected growth is problematical. It's depending on a number of parameters, only some of which are cast in stone. Thank you.

CHAIRMAN RALPH: Thank you, sir.

MS. VANDEVER: My name is Carla Vandever. I'm speaking as a citizen who has been following environmental issues for about 10 years. Peter Rogers, of the legislature and Harvard Division of Applied Science accept the theories on water quantities. He has experience in dealing with water quantity problems and solutions.

And to my surprise he was very

hopeful about the future of our problems. And this is primarily because of technical advances and because of the spirit, because of renewed community spirit. He stated that the water system, the water supply system in Boston is extremely outdated. As you have pointed out, it's 100 years old. A lot of technical advances have occurred in that period of time.

He wants to make the recommendation to alleviate our problems, and all of them would come under what you call non-diversion area techniques. There has been an enormous amount of technology and I would urge you to tap our expertise before you tap our rivers.

MR. HAMILTON: My name is Andrew Hamilton, just like on the $10 bill and representing the Conservation Law Foundation of New England, otherwise known as CLF. We'll be submitting our more extensive written comments within the time period provided.

Primarily, CLF is troubled by the presentation of nine apparently equal

alternatives in the Summary Report and I won't bother you by quoting the Interbasin Transfer Act, but it seems very clear that the mandate is very strong to present the local sources alternative as the only viable one under the law.

With respect to conservation we applaud the authority commitment to the demand management program, but we also think that the leak detection and repair and state-wide metering which is also required under the Interbasin Transfer Act have been given rather short shift.

The non-domestic use category also has been underestimated as to the potential for increasing greater water use efficiency by local manufacturing plants.

And particularly the local user source option seems to have been greatly undersold. The maximum of 10 million gallons a day extra that can be achieved at the local source level seems to be really, really underestimated.

And I would point as an example to

the Neponset Aquifer which several years ago a study was done stating between 25 and 40 million gallons a day, in that one source a day.

Now a U S G S study presently is going on to determine whether that is actually the case and how feasible it is to tap that aquifer. No mention was made of this in the report. And I wonder what other sources are available that haven't been looked into.

Given the strong mandate and the Interbasin Transfer Act, it seems the local supply option should be attacked even with greater aggressiveness than the other options, and in fact seems to have been given less importance.

Let me just record that we also feel strongly that it would be extremely poor planning to divert poor water in one of the nation's highest qaulity drinking water sources, the Quabbin Reservoir.

And finally we are really unconvinced of the need for 150 million gallons a day of extra water capacity based on several

points. One being the unaccounted-for category estimated at five per cent savings. We believe that number should be much higher.

The safe yield value, we've never seen an estimation on that. That value of 300 million gallons a day was determined with a mathematical model, not empirically. So there should be some estimation or error value. We'd like to see that further communicated.

Population growth estimates also seem accessible. And non-domestic use projections are underestimating the degree of savings and also ignoring the fact there is a shift away from modern inexpensive industry.

Fifty-five million gallons per day reserve capacity projected for partial users has been virtually swept away by the passage of M W R A Enabling legislation as well as the Water Management Act.

In summary, we're not persuaded of the need and would like to see legal responsibility, that the M W R A now fund be upheld.

MR. SISSON: I'm Thomas Sisson. I am co-chairman of the Sudbury River Citizens Advisory Committee and I admire you for your patience, having stood so long, heard so many comments, all of which are brilliant, much more brilliant than mine. Many, of course, they've said everything I want to say. I want to just add about the Sudbury River there's been contended that it is possible through the Interbasin Transfer Act to transfer water from that river into this system.

I haven't contested that legally. But I assure you that if it is considered seriously as a proposition as one of your alternatives, that it will be very seriously considered for legal action.

I also would remind you of the situation of the Sudbury River Treatment Plant Project which has already been pointed out by Representative Hicks which was found by the Secretary unacceptable in 1984. That is not, therefore, a correct subject for your consideration because it comes under a separate

Environmental Impact Report until that report has been accepted.

Let me remind you further that the scope of the Environmental Notification Forum put out by Secretary Buzik in 1979 very clearly spelled out the nature of that study.

The factors, for instance, which I feel have not been met are the requirement that the E I R analyze minimum flows and elevations, timing and duration over a 20-year planning period, impacts on wetlands, including a definition of the area of wetlands flooded at various river stages, the whole problem of sludge disposal, impacts on sediment transport, the impacts on wildfowl, with specific instructions given to cooperate with Federal and state wildlife agencies. I shan't go on to enumerate all of the 12 impact studies, either those overlooked or those left incomplete.

Finally I'd like to ask that the members of this Board help us, the members of the Sudbury Valley to help you. This has been said over and over again and we've come to the point

where we feel that your million dollars has been very well-spent, your 6 million dollars has been very well-spent.

The reason I say that is because it proves that conventional engineering techniques of the 19th century are no longer the sole ones applicable to water resources. It's good to know that you can't just build another dam and gobble up another river without using every effort to find other water resources, other water sources, or other means.

And as I've said before, you have an enviable responsibility to develop innovative approaches to water resources. Use the Act that was developed to make this Authority a helper and you will be way ahead. That didn't come out quite right. You will be way ahead.

I also have a letter I'd like to present from the Chairman of the Board of Selectmen from Concord. You remember the chairlady had to leave early and I will present it for the record. And I will also add that I have spoken with a member of the Sudbury River

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Citizens Advisory Committee who also wishes to go on record and she will also submit her comments separately and that is Joan Kimball of Lincoln. Thank you.

MR. CULP: I am Lloyd C U L P with the United States Fish and Wildlife Service. I am from the Great Meadows Refuge headquarters in Sudbury. My comments relate solely to the Upper Sudbury Watershed. The Fish and Wildlife Service is definitely concerned about the Service's responsibilities specific to the management of the National Wildlife refuge and the purposes for which it was established.

Reactivation of the reservoir would reduce the flow of the Sudbury River thus the extensive wildlife that rely on these wetlands as well as others could be affected adversely. The refuge is critical to the maintenance and management of a variety of wildlife, especially waterfowl, and provides a set of opportunities and facilities to study and preserve wildlife.

Obviously we do not want to see

those values reduced in any way. We feel the Environmental Impact Report which was prepared in 1984 for the Sudbury Reservoir Water Treatment plant was definitely inadequate for the Sudbury and Concord Rivers. During the review period for that Environmental Impact Report, the Fish and Wildlife Service provided the detailed comments on specific shortcomings of that report.

However, the basic problem with that EIR was it did not fulfill the expressed intentions of the MDC nor the scope of the EIR set forth by the Massachusetts Secretary of Environmental Affairs. The MDC stated intentions were to study various aspects relating to this program were the effects of flow on fisheries and wildlife on downstream Sudbury and Concord Rivers, to determine environmentally the effects of flow changes on vegetative species bordering the river, the effects on the downstream wetlands areas, effects on downstream floodplains area, relationship of flow changes to sediment transport in the downstream flow.

In his determination as to scope

and alternatives the Environmental Impact Report that was I believe used in 1980, Massachusetts Secretary of Environmental Affairs directed the MDC to analyze the minimum flow of elevations over a 20-year time period required to fulfill the needs for and determine the impacts on downstream floodplains, wetlands and other areas.

Specific issues to be studed were impacts on wetlands, including a definition of the area of wetlands flooded at various stages, impacts on sediment transport, impacts on wildlife, especially waterfowl habitats and their management, including the analysis of the water levels necessary to maintain current management systems within the downstream Federal and State wildlife refuge areas and Town conservation land, and finally impacts on fisheries, including the fisheries restoration project.

In 1984 the Fish and Wildlife Service expressed its position that the Environmental Impact Report is clearly deficient in data analyses to address these issues.

Without the data analysis the E I R discussed these impacts in an entirely qualitative, subjective, and consequently, inadequate manner.

Unfortunately, based on information from the current Summary Report we do not have any evidence that the Massachusetts Water Resources Authority has made any effort to correct the deficiencies in the 1984 Environmental Impact Report.

Due to the severity of these implications they impose in making formal decisions, we do not concur with the conclusions and proposals of the M W R A related to the upper Sudbury Watershed Alternative.

Without the collection, assimilation, and presentation of requisite information we do not feel that M W R A has adequately demonstrated that this program would not constitute a serious threat to the Great Meadows National Wildlife Refuge, a potential threat to the fish, wildlife, and people who use and depend upon for preservation and enjoyment and education.

It requires a more thorough assessment of the project's consequences and more substantive presentation on the results of that assessment.

Therefore we request that the MWRA correct the deficiencies that we identified in the E I R Report for the Upper Sudbury Water Treatment Plant in order to assure the protection of natural resources along the rivers. Thank you.

MR. GOLDSTEIN: My name is James Goldstein and I'm here on behalf of ESRG which is a technical research and consulting firm which specializes in natural resource planning and forecasting. I'm here to address the issue of the demand forecast of the MWRA which has been alluded to by many previous speakers, the problems with it, and the need for additional work in this area. I would like to inform the Water Resources Authority that ESRG is in the process of thoroughly reviewing the MWRA Water Demand Projections Report for the Boston Metropolitan area.

Our preliminary assessment of this report indicates the Authority's projections for future water demand are too high and that these high projections do not provided an adequate basis for planning for the region's future water supply.

We are currently preparing an alternative forecast, what we call a "low-case" forecast, which will include a number of assumptions that differ from the assumptions used in the MWRA forecast.

Briefly, our alternative forecast will reflect different assumptions in two broad areas. First the demographic and economic forecast for the region, and second, the potential for conservation. We are utilizing an updated demographic and economic forecast based on work done by the Boston area's regional planning commission, which we believe more accurately reflects population and economic trends in the region.

In addition, we'll look at a demand reduction scenario for matching water

supply and requirements, which includes far more conservation initiatives than assumed in the current M W R A forecast.

We think it is extremely important to consider the conservation approach as an alternative to enhance and thoroughly compare relative costs, feasibility, and environmental impacts.

The results of E S R G's alternative forecast will be made available to the Authority and the public within the next few weeks. Thank you.

MS. BROWN: Shirley Brown representing the Town of Natick, and I also have a few remarks of my own. I'm a Natick representative of the Sudbury Citizens Advisory Committee, a member of the MWRA Citizens Advisory Group, and have been a member of the Boston Harbor CAC.

Natick reiterates Concord's testimony in their letter. They, however, have one diversion. That is since the present system was initiated, Lake Cochituate has depended on

3 and 1/10 millions gallons a day released by the MWRA, formally MDC, from the Sudbury Reservoir Number 3 to the Sudbury aquifer and eventually to the lake at Fort Brook.

This water returns to the Sudbury River as part of Lake Cochituate discharge. Natick draws almost all of its water from Lake Cochituate groundwater resources within the Sudbury watershed. Natick is committed to assure the protection of its water supply. Natick recommends that the MWRA pursues non-diversion techniques. You will be getting a signed letter. This is one that I brought today.

With the Sudbury Reservoir Water Treatment Plant last year in its Draft Environmental Impact Report the Director of Forest and Parks asked as it is an intensively used recreation link which is dependent upon stable water levels the elimination of 3 million gallons from the flow and would have diverse effect on usage. That was Bill Bliss to people at MEPA.

Under Chapter 603 of the Acts of

1950 that allows discharge of 15 million gallons a day and up to 500 million gallons annually from the Sudbury Reservoir through the aquifer system, that originally meant to maintain a steady flow into the Charles River. It no longer goes to the Charles, but it does maintain a steady flow in Lake Cochituate and flows and courses through the lake, and so therefore it has become a necessary part of lake flow.

And considering that only 18 million gallons totally including the 3 and one tenth million gallons is introduced into the lake from its tributaries and has an average mean flow, and that only 20 million gallons a day is discharged and exits the lake, this is a crucial amount. And we hope that you will keep it.

Now, the good news on water supply that hasn't been stated here today is what industry is doing to conserve water. Our neighboring Framingham, which is in the Sudbury watershed, their General Motors plant has in the last year added a 400,000 square feet addition to their plant and there has been no increase in

water or sewage use with this addition.

They have a closed loop system and they pre-treat their effluent and reuse it for industrial processing and they buy the water once and recycle it. And they are planning their second addition at the present time.

Again, they have no intention of using any new water or discharging more sewage. It's about I guess a million gallons or more. And they have just received bids for another half million gallon tank and managing storage pipe and pumps.

The reason I haven't had a chance to put my remarks on paper is because I have been processing, making comments on so many MEPA projects in the Natick Framingham area. There's been at least 500,000 gallons a day of sewage transfers, interbasin transfers, proposed in the last year. And I really and truly believe if they're going to pursue this kind of thing with hotels, motels, and office complexes that the regulations for the code have to be changed and alternatively they have to initiate satellite

sewage treatment plants in the area to recharge the Sudbury River if they're going to take any supply from that.

I would reiterate on this as the Wildlife man did on the daily flow data, that has not been available for the Sudbury River and the run-off per square mile was obtained from the Assabet River in Maynard and the Quobog. But in 1975, as early as 1975, the Sudbury Watershed Association, of which I was one of the founders, was pursuing getting a gage at the dam in Saxonville.

And in 1976, in their volume 7 Number 1, they're talking about the watershed flow gaging station on the Upper Sudbury River. They're saying the need for the station was thoroughly established during the animal study and was supported by that study's Technical Subcommittee. Then every agency apparently let the project drop.

At present, the daily flow data is taken from the flow gage at Lowell which not only is far downstream, but in fact on the Concord

River.

Establishment of a new station and years of data collection therefrom require to actively predict and monitor the impacts of the present and proposed water diversions.

I submit that the MDC has been remiss in not pursuing any gaging so that they could really have some sense of the Upper Sudbury. And if they were not performing their duty, has this been done in a reasonable manner in the best interests of the public in Sudbury.

And lastly, I really believe that we would be depleting Lake Cochituate if we didn't get this through. That's been coming to us from the 1870s. Thank you.

MR. CLARK: I'm Robert Clark of Petersham. I'm here to speak on behalf of the Massachusets Association of Conservation Commissions. I'm also a member of the Scientific Research Task Force for WSCAC and am very much involved in all these projects, and also Board member of the Friends of Quabbin, and a member of the Quabbin Watershed Advisory Committee for the

MDC and have substantial input into the deliberations and comments from Quabbin.

The MACC is strongly opposed to alternatives under consideration by the Massachusetts Water Resources Authority for the diversions of the Connecticut River and Millers/Tully River to the Quabbin Reservoir.

The general approach of seeking water sources from Central and Western Massachusetts as if they were unlimited and neglecting comprehensive and strict approaches to conservation, leak repair, and rehabilitation of user sources which go beyond the studies in the Summary Report is extremely shortsighted and could have severe impacts on the Commonwealth for the future.

As communities experience growth that may go beyond the estimates in the studies, other regions in the Commonwealth are also in a state of growth that will put increased demands on these varied water resources. Water resources are finite resources, and as such are even more important to local interests.

The potential environmental impacts of the alternatives are inadequately addressed. The impacts of decreased flow in the Connecticut River and especially in the Millers River on water temperature and concentration of sediments have been poorly addressed. Natural seasonal fluctuations in flow is an integral part of a river's ecology, that's the flushing action that you get in the spring, and very much necessary, and it is inconceivable that a major change in the ecology of the river system would not occur over time.

The interruption of the lampery to the Quabbin Reservoir would devastate the fisheries there. Also the increased eutrophication of Quabbin could be more severe than anticipated should drought periods occur creating low reservoir levels and higher water temperatures. Although mention is made of prehistoric sites, it should be noted that detailed surveys have not been made.

The MDC is currently contracting to have this work done, but this is the first to

be done. And a lot of these records, nearly all local funds have been involved at one time or another. And I'm especially concerned with the drying of habitat and subsequent mortality in the Merrimack River alternative. The effects on rare and endangered species and the reduction of flow and change in communities along river edges is of concern for the Merrimack and Sudbury River alternatives.

The lowering of the water table which would result from the proposed Plymouth aquifer alternative would have a devastating effect on many State and Federally listed endangered species. Of course, we have the Federal listed, but we also have State species, redbelly, and other species. The alternative could have a major impact for the region in reducing locally needed water resources.

In general the studies have been poorly prepared and contain many errors. Indicator species were selected that do not exist in some cases, and in other cases do not indicate the effects of the proposed changes.

When errors occur such as species which is in actuality a carnivore listed as a herbivore, one has to question the credibility of the study. Such errors are common in the Watershed Management Alternative study.

I must as a member of WSCAC say I was very frustrated throughout this project. These comments and suggestions never get through to the consultant. They either choose to ignore it for one reason or another. I prepared a list of indicator species for them. They used some of the species, but many incorrectly. So whether it's a lack of knowledge, I just don't know, but it's been very frustrating.

The severe reduction in forest density, especially softwood forest density, density recommended in the Watershed Management Alternative can only create a major disruption and change in the ecology of the Quabbin Watershed. Although some reduction in density is needed, the alternative is much too extreme.

This alterntaive would have a disruptive effect on the forest products economy

of the region. A much more protracted watershed management program with consideration for the protection of important habitats would increase water yields and help protect the economic stability of the region for forest products.

Fortunately, the MDC watershed management plan goes a long way in addressing some of these concerns.

The MAACC opposes the diversions under consideration by the MWRA as the studies contain numerous errors and as they do not address the real need for strict conservation, leak repair, protection and rehabilitation of local water supplies, and program of demand management.

The risks to the water resources, as well as to the overall environment of effected regions, are not worth taking. And I also want to commend Commissioner Geary for his remarks on the study. Thank you.

MR. BARAM: I am Michael Baram, Professor of Health Law at the Boston University School of Public Health. And I am a memeber of

WSCAC, Water Supply Citizens Advisory Committee and user of water from the M D C, as all of you probably are also users.

And I think it's very ironic that we have at this time before us a proposal which is so plainly unacceptable that it really is a waste of all our time to even discuss it, and that is the Connecticut diversion program.

At a time when the Russians are trying desperately to keep any radiation out of the Kiev water supply from Chernobyl we are thinking of a proposal to link up with Quabbin, one of the best quality reservoirs in the world from what I've heard for a large municipality to the Vermont Yankee effluent, a few miles downstream from Vermont Yankee.

Vermont Yankee continually discharges radioactivity and it breaches its license to discharge every year with several excessive releases. It is well known. It is a matter of public record Vermont Yankee has been cited many, many times for the poor management, and worse, it's been cited for failure to notify

the State of Vermont, for failure to notify the Long Island shellfishing companies, failure to notify downstream municipalities all along the Connecticut River.

And I insist it's just so ironic, it's so wasteful of our time to take this proposal seriously. But this reflects on the quality of the study that was done on the Connecticut River diversion. There is no public health aspect to this study of any merit. It's so seriously and blatantly deficient over public health issues.

It mentions radioactive isotopes. It mentions gross alpha and gross beta, but it doesn't talk about the types of isotopes which is very important when you're talking radiation health and safety to people. They say that without knowing the isotopees, and without knowing the half-life and the lifetime of potency, which can be considerable, one cannot even consider drinking water or allowing a reservoir to take contaminated water that's been contaminated with radioactivity without knowing

the isotopes. Isotopes are not mentioned. Gross alpha, gross beta are mentioned.

Old studies are cited, not indicating exactly where those takings of samples were made. No taking was made recently of samples at the point of proposed diversion to Quabbin.

Misleading comments in the report state to the effect that there is no standard for gross beta. And there is a standard for gross alpha. Then the old studies are cited saying that no discernable gross alpha was found. Gross beta was found up to four units. I forget the exact radioactive units. But since there was no gross beta standard in drinking water it was not a concern.

But if one turns to the very appendix of the report, including the safe drinking water standard, there you find a gross beta standard of 4, standards already reached in 1978 when this sample was taken. So I just think that this is an irresponsible report from the standpoint of public health.

Second, if one can set up a monitoring system, an independent monitoring system so you wouldn't have to rely on the habits of Vermont Yankee who are supposed to notify, there would have to be a monitoring of discharge, monitoring system at the point of linkage to Quabbin, monitoring the system in Quabbin to insure that levels of radioactivity in the water you consume are very, very low.

And that, of course, would be controversial to all of you who drink that water. There is no threshold concept applying to the radioactive health situation.

Even if we did all that monitoring, kept the levels very low, radioactivity has different isotopes, lasts for various periods of time, generally very long. If it does get into the sediment, Quabbin could become contaminated in 20, 30, 40, 50 years. Continuous intake of radioactivity material in Quabbin would ruin that reservoir and would cause economic and welfare havoc in Massachusetts.

For those who depend on the

quality of the water of Quabbin, and for these people, and other reasons, I feel this report is just to be completely disregarded and we should then proceed to discuss a more realistic approach. Thank you.

MS. CHAPMAN: My name is Priscilla Chapman, Executive Director of the New England Sierra CLub and I'll make some brief remarks on behalf of our 10,000 members in Massachusetts.

I'd like to commend the MWRA Board. We think it is wonderful that you are giving priority to the demand management alternative. We believe that a greater yield can come from this alternative than the study indicates so we encourage you to persevere in what you are doing.

We vehemently oppose all interbasin transfer schemes. That includes the Sudbury River. That includes the Plymouth Aquifer. We're a little bit perplexed from the letter from Governor Dukakis that it does not mention those two and we'd like some clarifiction. And Jamie has left, so I guess we

won't get it.

We believe that the priorities should be, as you've already established, the demand management alternative, also the user sources alternative, and to the extent it is environmentally sound, the watershed management alternative.

This report begins from the wrong premise. It assumes inability to augment capacity and essentially asks the question how much water would M W R A customers like to have.

In a century that's seen bitterly the limits of growth, that's witnessed dramatic social and environmental impacts from placing too many demands on our limited natural resources, the study should begin by establishing how much water will be available to MWRA without the implemenatation of interbasin transfer schemes and then figure out ways by which the MWRA service area can live within those limits. That to us would be a valuable study.

We believe, as many other speakers have said before, there is a serious need to

re-evaluate the demand projections for future years. I won't repeat what other speakers have said. We'll be submitting more detailed written comments on what we think is wrong with those projections before the end of the comments period.

Just a couple of other things. We're concerned that this study of MWRA supply is isolated, particularly in its discussions in the consequences of drought. We'd like to know how other non-MWRA water systems would respond to the same weather conditions and would MWRA customers be significantly better or worse off than other people in Massachusetts, especially people in the donor watersheds.

Water supply throughout Massachusetts should be studied to answer those questions. This is limited area that has been looked at.

Finally, my last comment is this. This report presents an excellent case for the need for us to have on both Federal and State levels better hazardous waste clean-up programs.

Our present Super Fund programs and other kinds of hazardous waste clean-up programs are moving with the speed of turtles and they are performing clean-ups that are not really clean-ups. They are temporary cosmetic measures that leave contamination in the ground so in the future they have the potential of poisoning our water supplies.

The Sierra Club has worked very hard on this issue and we'd like to invite MWRA to join us in working for better hazardous waste clean-up programs. We think that would be a much more promising way to yield safe, dependable water supplies in the future than to be pursuing very foolish interbasin transfer schemes. Thank you.

(Applause).

MR. ELLIOTT: My name is William Elliott. I'm a member of the Water Supply Citizens Advisory Committee, the Sudbury Citizens Advisory Committee, Massachusetts Committee on the Connecticut River, and the Commonwealth Drought Management Task Force which was convened

under the auspices of the Water Resources Commission in response to the drought conditions.

I will not reiterate the comments that you have been hearing. I would like to focus on a couple of the things that support some of the comments that you have heard and to present a specific concern of my own.

I got involved with this thing at the time of the Sudbury River study as a consultant to the Water Commission of the Town of Lincoln who were then in the process of installing a new well for that town very close to the Sudbury River and the concern was whether or not the proposed diversion would have an impact on that water supply.

With respect to the study that was performed by Parsone-Brinkerhoff and their environmental consultant I E P, I participated in the planning of that and the actual conducting of that study and I would like to tell you a little bit about it.

Very briefly, Number 1, the

analyses that were done of the water quality purport to describe the conditions of the water during high flow conditions. They do not. The actual sampling was done about a month after the high flow conditions. Therefore the analytical results do not in fact reflect the actual quality. In particular, they do not tell you what is in that sediment.

I performed my own analysis in fact. The gentleman who talked from the Nyanza project is correct. The sediment of that is toxic. And frankly, I cannot imagine that you would seriously consider taking water from Framingham Reservoir Number 1 and its source, Framingham Reservoir Number 2 which is adjacent to the land, and put that into the Sudbury Reservoir which will wind up contaminating that reservoir.

It is really a bad idea. And I think you should look seriously at the analytical data that both the water quality and the sediment is incorrect. It is not right.

The evaluation of the impacts on

the Great Meadows Refuge, and Lloyd Culp from the National Fish and Wildlife was here to tell you about his concerns with that, I would like to tell you that I again was involved with the discussions with the Refuge Manager.

At that time recommendations were made by the consultant, by I E P, as to the elevation criteria which should be chosen in the event a diversion of the river were to be undertaken.

The elevation criteria were lowered by six inches as a result of the insistence of the project proponent at that time in order to obtain an incremental amount of half the mgd. Now six inches may not seem like a great deal to you, but if you are dealing with a wetlands where the bank elevation is close to 113 which is the case in the Meadows, and the recommendation is 114, you're dealing with a difference between water that gets to the refuge and water that doesn't.

You're not dealing with a half a foot of elevation in a river that is perhaps 10

feet deep. What you're dealing with is the breeding conditions in that refuge, particularly in the month of May where the proposed elevations, and as a result, directly as a result of the intervention of the proponent engineers, were lowered to within two inches of the historical minimum value for the 50 years of this study. I think you should look seriously at that.

The other aspect that I think should be considered, Priscilla brought it up, it was mentioned briefly by one other speaker here, and it's associated with one of my other concerns and that is as a member of the Drought Management Task Force, and it is that there is no insisting drought management plan. The MDC started out to develop one in 1980. It has not been done.

There are series of trigger levels as a function of time during the year, elevations of Quabbin Reservoir, and names are given to actions that should be taken, that is a drought alert, or some kind of other more additional efforts at some over level of the Reservoir. But

there are no plans.

One of the things you should do because your reservoirs at the moment are at about 82 percent of capacity. They should be from the look of average values in the vicinity of 90 percent. It's probably going to be necessary to undertake some drought management before that Reservoir comes back up to the 90 per cent. You're going to have to do something to conserve.

Now the water that is conserved in that system because it is so large, if you conserve 10 million gallons a day for a year you're talking about a lot of water that will be available later on.

That Reservoir has a time element of water of five years, and the effect of drought management initiated early in a low precipitation situation was not considered in the study.

The drought management plan in this study talks about cutting back on useage for maybe 90 days, something like that, but you have to cut back a lot.

You have to tell industries. You have to tell homes really to cut down on the usage.

But a 10 per cent cut-back for a year is equivalent to a 40 percent cut-back for 90 days.

Because the Reservoir integrates, you have some management options to explore. And I urge you to do so as part of your considerations as to how you deal with the water supply situation that you face. Thank you very much.

(Applause).

CHAIRMAN RALPH: For those of you who have remained, some of you for three meetings, and today, and for those who gave comments and have left, on behalf of the M W R A, our Board, and our Executive Director I'd like to thank you all for the information, comments and testimony that you've given us here today.

I assure you that you will be helping our Board put together a wise and prudent long-range water supply policy for the entire

metropolitan area. Thank you.

(Applause).

(Whereupon the proceedings were concluded at 5:40 p.m.)

CERTIFICATE

I hereby certify that the foregoing 159 pages contain a full, true, and correct transcription of all my stenographic notes taken in the above-captioned matter held at the Public Hearing of the Massachusetts Water Resources Authority on Tuesday, June 1986, commencing at 1:30 p.m..

Kathleen M Bradley
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NOTARY PUBLIC
REGISTERED PROFESSIONAL REPORTER